

9D-A043222

TRIMIS-Army Technical Report 1-10



 $H \ O \ S \ P \ I \ T \ A \ L$

LOGISTICS

PROCESS
CONDITION ACTION DIAGRAM
FLOWCHARTS

US ARMY TRIMIS AGENCY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, DC 20012



November 1976

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REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM			
1. REPORT NUMBER 2. GOVT ACCESSION NO.	. 3. RECIPIENT'S CATALOG NUMBER			
TRIMIS-ARMY-TR-1-10	and a least of the determinant			
4. TITLE (and Subtitio) HOSPITAL LOGISTICS PROCESS CONDITION-ACTION DIAGRAM FLOWCHARTS	5. TYPE OF REPORT & PERIOD COVERED 6. PERFORMING ORG. REPORT NUMBER			
7. AUTHOR(e)	N/A 8. CONTRACT OR GRANT NUMBER(#)			
LTC Lloyd Dupuy; CPT William Moon; Mickey Hile, CDP; Ms. Lee Ingham	N/A			
9. PERFORMING ORGANIZATION NAME AND ADDRESS USA TRIMIS Agency WRAMC Washington, DC 20012	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS			
11. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE			
USA TRIMIS Agency	November 1976			
WRAMC	13. NUMBER OF PAGES			
Washington, DC 20012	96			
14. MONITORING AGENCY NAME & ADDRESS(If different from Controlling Office) N/A	15. SECURITY CLASS. (of this report) UNCLASSIFIED			
15a, DECLASSIFICATION/DOWNGRADING SCHEDULE				
16. DISTRIBUTION STATEMENT (of this Report)	ACCESSION for			
Approved for public release: distribution unlimit	NTIS White Section DDC Buff Section UNANNOUNCED JUSTIFICATION			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from	om Report)			
Same	BY			
18. SUPPLEMENTARY NOTES				
To be used in conjunction with TRIMIS-ARMY-TR-1-1	Overview.			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number, Flowchart, Condition-Action Diagram, Health Care, Hospital, Logistics, Supply				
20. ABSTRACT (Continue on reverse side if necessary and identity by block number)				
The purpose the TRIMIS Hospital Logistics Systems flowcharts is to provide in graphic form the proce in developing computerized logistics information f environment. Only those processes which lead to operating capability of the TRIMIS HLS are depicted of communication between the functional user and the also serve as an aid in identifying sub-activities	(HLS) condition-action esses that must be understood flow for the intra-hospital or react with the initial ed. They serve as a vehicle the system analyst. They			

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which easily lend themselves to computerized information flow.

There is a wide diversity of magnitude and complexity in intra-hospital logistics operations throughout the military medical departments.

The flowcharts presented here are a description of one way of implementing the concepts to be used in the new Walter Reed facility. They represent manual activities required to be performed if optimum information flow is to be maintained and include the manual application of the envisioned ADP support. They also assist in identifying the impacts that changes to one part of the system may have on other parts of the system. In addition, they assist in the estimation of the manpower resources saved as a result of implementing an ADP support system. As such, they contribute input for economic analysis. Their applicability to facilities of smaller size or more limited scope of operations is undetermined at this time. However, they should as a minimum serve as a baseline which can be tailored to meet specific needs. Some of the activities described in these charts have been implemented at the Walter Reed Army Medical Center's Model Ward and Model Clinic.

The logistics subsystem of TRIMIS has as its ultimate objective the development and implementation of the ADP support that will enhance the operations of Logistics Service Management as described in applicable Medical Logistics Policies and Procedures. As such it will be a part of the support of all functions involving material within the health care facility and all satellite health care activities, including coordination of service equipment maintenance, custody of property, and maintenance of a clean environment.

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ACKNOWLEDGEMENTS

These charts were developed by the Logistics Team of the us army Tri-Service Medical Information System (TRIMIS) Agency with input and review having been provided by personnel of the Logistics Division of Walter Reed Army Medical Center. During and after their development, the charts were reviewed by TRIMIS physicians, nurses, systems analysts, and other functional specialists. The principal TRIMIS personnel involved in this effort were: LTC Lloyd C. Dupuy, Mr. Mickey Hile, Miss Julia Ingham and CPT William Moon. Questions on the charts can be referred to any of the above individuals by telephoning AC 202-576-3196 (Autovon 291-3196).

PURPOSE

The purpose of the TRIMIS Hospital Logistics Systems (HLS) condition—action flowcharts is to provide in graphic form the processes that must be understood in developing computerized logistics information flow for the intra—hospital environment. Only those processes which lead to or react with the initial operating capability of the TRIMIS HLS are depicted. They serve as a vehicle of communication between the functional user and the systems analyst. They also serve as an aid in identifying sub—activities which can be routinized and thus which easily lend themselves to computerized information flow.

BACKGROUND

There is a wide diversity of magnitude and complexity in intrahospital logistics operations throughout the Military Medical Departments. Even within medical treatment facilities of similiar size
and activity, there can exist differences in the way in which logistics operates, although identical functions are performed. For example, the utilization of logistics technicians, nurse servers, a
cart exchange system, or a central equipment pool may exist at only
selected facilities, but every logistics activity is involved in
supplying wards and clinics with needed materiel. Further, the manner in which each of these concepts is implemented may differ at
each facility. The flow charts presented here are a description of
one way of implementing the concepts to be used in the new Walter Reed
facility. They represent manual activities required to be performed
if optimum information flow is to be maintained and include the

manual application of the envisioned ADP support. They also assist in identifying the impacts that changes to one part of the system may have on other parts of the system. In addition, they assist in the estimation of the manpower resources saved as a result of implementing an ADP support system. As such, they contribute input for economic analysis. Their applicability to facilities of smaller size or more limited scope of operations is undetermined at this time. However they should as a minimum serve as a baseline which can be tailored to meet specific needs. Some of the activities described in these charts have been implemented at the Walter Reed Army Medical Center's Model Ward and Model Clinic.

LIMITATIONS

Some of the flowcharts presented here must not be construed to fit all situations. In fact, some may fit no situation. Particularly in the Materiel Distribution Service (MDS) area, the amount of clerical activity involved is so cumbersome that much of the information flow will have to be sacrificed if the operation is not supported by ADP. The charts nevertheless serve the purpose of describing to the ADP developer the step by step manual procedures that would be performed in the optimization of information flow. Obviously, the degree of implementation of the methodologies presented here must be carefully balanced with available resources if implementation in a manual mode is contemplated.

With a given that the new Walter Reed is being constructed with built-in mechanized physical distribution systems and nurse servers for each inpatient, and that the concepts of a Materiel Distribution Service, Central Equipment Pool, and Logistics Technicians would be implemented, no attempt was made to chart alternative methodologies of intra-hospital logistical support.

OBJECTIVES

The logistics subsystem of TRIMIS has as its ultimate objective the development and implementation of the ADP support that will enhance the operations of Logistics Service Management as described in AR 40-61, Medical Logistics Policies and Procedures. As such it will be a part of the support of all functions involving material within the health care facility and all satellite health care activities, including coordination of service equipment maintenance, custody of property, and maintenance of a clean environment. ADP applications, however, cannot totally replace manual systems. The two must be judiciously merged. Application of complementary ADP and manual systems will accomplish the following objectives stated in AR 40-61:

- l. Improve patient care by relieving skilled professional personnel of unrelated duties.
- 2. Reduce health care facility operating costs and inventories of materiel at all storage locations.
- 3. Improve material support through continous flow of material, automatic computation of requirements, and direct contact between operating personnel of the logistics division and using activities.
 - 4. Centralized management of all materiel flow.
 - 5. Safe and efficient maintenance of service equipment.
 - 6. Improved housekeeping support through collection of waste.

The manual flowcharts are the first step in defining the methodologies that can be implemented to achieve these objectives. They are not collectively exhaustive in that they address only those areas that support the near-term objectives of the ADP system.

OVERVIEW

The flow charts presented here are divided into three groups. One group describes the activities performed by a logistics technician in support of a health care point. The next group describes the activities which occur at the Materiel Distribution Service, the focal point for all logistics support within the medical treatment facility. The third group describes the activities that occur in the management of the central equipment pool.

Each group of charts is constructed as a closed system. The logistics technician and Materiel Distribution Service groups each contain a control or master chart named General Duties Process. This master chart identifies each process that can be performed within that group's scope of activity, allows the reader to select a process to be performed, and directs him to the detailed chart of the selected process. At the completion of each process the reader is directed back to the master chart for selection of the next process to be performed. Note that in the Logistics Technician's General Duties Process, the flow of activity allows the selection of processes only if there is no need to submit critical orders. If critical orders need to be submitted, the Logistics Technician's Order Process must be performed before selection of another process is allowed.

Two charts, the Cart Delivery and Return Process and the DDAMP/MDS Posting Process, are members of two groups. Two charts, Overview of Materiel Inflow and MDS Document Flow, are members of none of the groups. The former as a basic introduction to the uninitiated reader, the latter serves to clarify the interrelationships of the documents mentioned in the MDS processes.

SUBSYSTEM INTERFACES

The logistics flowcharts interface with the charts of Pharmacy, Food Services, Laboratory, Radiolgoy, Dental, and Wards and Clinics. There are no interfaces with Patient Administration and Patient Appointments/Scheduling.

CONDITION-ACTION DIAGRAM INTERPRETATION GUIDE

ACTION

When an action circle is encountered, the specified action, procedure, function, or process is to be performed as noted. An action is performed and never has a truth (true or false) value.



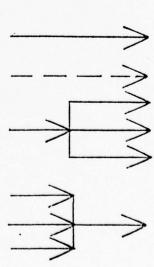
CONDITION

When a condition box is encountered, the specified condition is to be evaluated. If it holds true or succeeds, the following blocks on the diagram are to be executed. If the condition does not hold, then flow along this path of the diagram stops. The flow may, as appropriate, either be permanently blocked or may merely wait at the box pending the successful evaluation of the condition at some later time. A condition always has a truth (true or false) value.



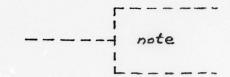
FLOWLINES

Flow proceeds through the diagram along the flowlines. When a flowline splits into multiple lines, all the lines must be followed (perhaps at once). If only one is intended, condition boxes will be used to select the proper line. When flowlines join or reconsolidate into a single line, that line is to be followed regardless of the number of joining lines that were active. Thus there is no waiting at a junction. Control, execution, or interpretation of the diagram is shown by solid flowlines. Data and information, is usually assumed to accompany control, but where necessary for clarity, it is shown, regardless of media, by dashed lines.



NOTE

Clarifying notes, comments, remarks, and other annotation, including references to additional documentation, are enclosed in dashed note boxes and are connected to the annotated structure by dashed lines.



STORAGE

A triangular storage block indicates storage of information or data regardless of the medium of storage. Thus, only dashed data flow lines, not solid control lines, will connect to storage blocks.



DOCUMENT

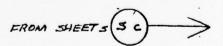
A document symbol represents information or data, regardless of media (it may or may not physically reside on a document). It is used only for clarity, as information such as that contained in the "document" is assumed to always be present along with the control flow. Like the storage symbol, only dashed data lines may connect to a document symbol.



CONNECTOR

A connector circle specifies that the flow continues on another page. An outconnector contains a number, which is the sheet number at which the flow is continued, and a letter, which specifies which in-connector on that sheet is being referenced. The in-connector contains the matching number-letter code. Adjacent to the connectors is a notation as to the sheet and process to or from which the connectors refer.





PROCESS

A striped process circle indicates a process to be performed. It is analagous to a high-level or meta-action. The process referenced will be diagrammed in its own set of condition-action flowcharts which are included in the same packet of flowcharts for reference. After the process is performed, flow resumes.

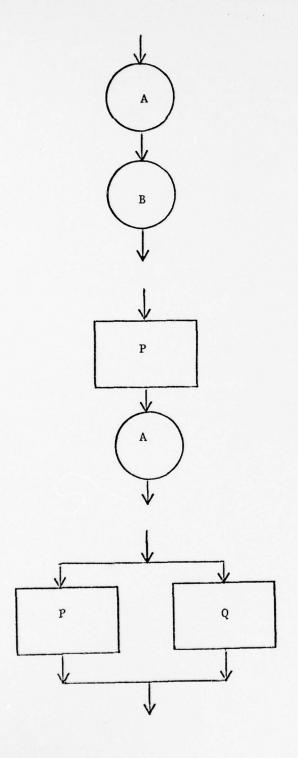


TERMINATOR

The oblong terminator symbol indicates that the current process or sub-process is complete. Normally, upon completion of a process, control returns to the process which invoked it, and resumes where it left off in that process.



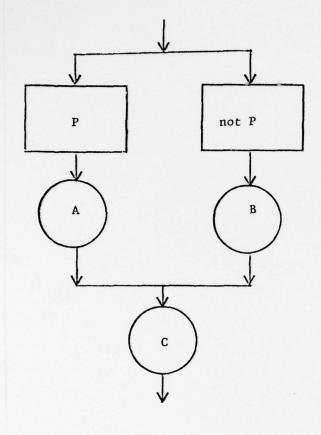
CONDITION-ACTION EXAMPLES



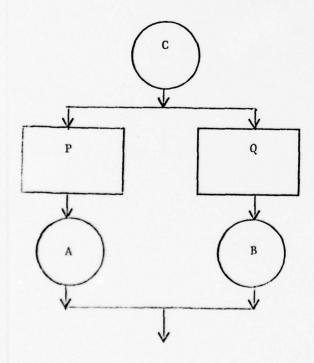
Perform action A first, then in sequence, perform action B.

If condition P holds true, then perform action A. If P does not hold, do not perform A

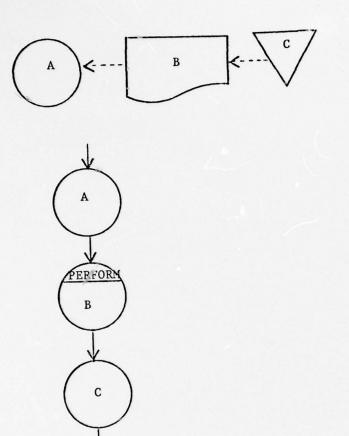
If either condition P holds true, or if condition Q holds true, (or both), then perform action A. If neither holds true, then do not perform A.



If condition P holds true, then perform action A but not action B. If P does not hold, then perform B but not A. In any case, when done perform C.



First perform action C. Then, if condition P holds true, perform action A. If condition Q holds true, perform action B. Note that both P and Q may hold, in which case, both A and B will be performed.



Perform action A utilizing information contained on the document B which was retrieved from the file C.

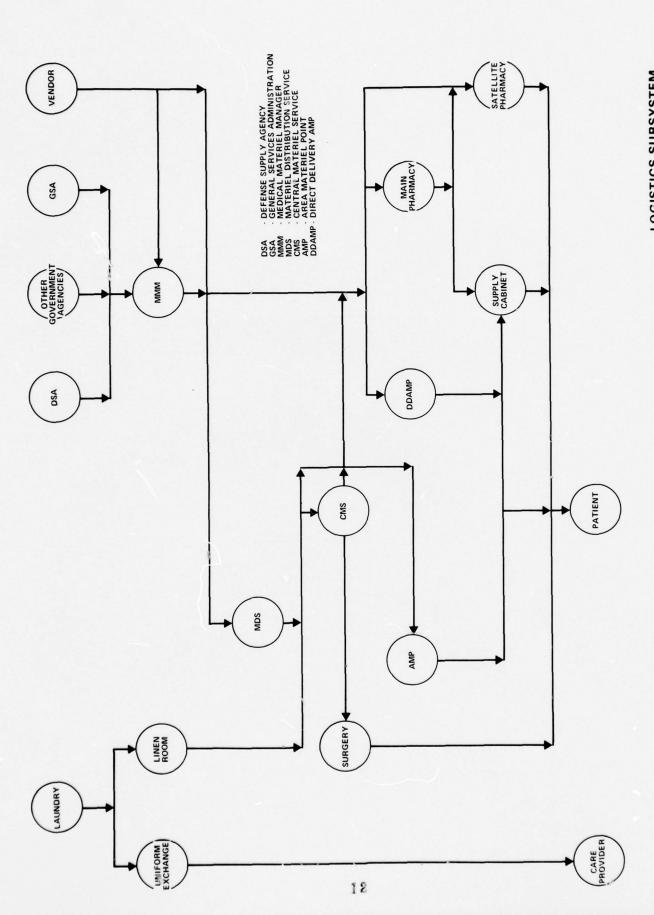
First perform action A. Then perform process B which is itself flowcharted elsewhere in this set of charts.

After B is completed, return to here and perform action C.

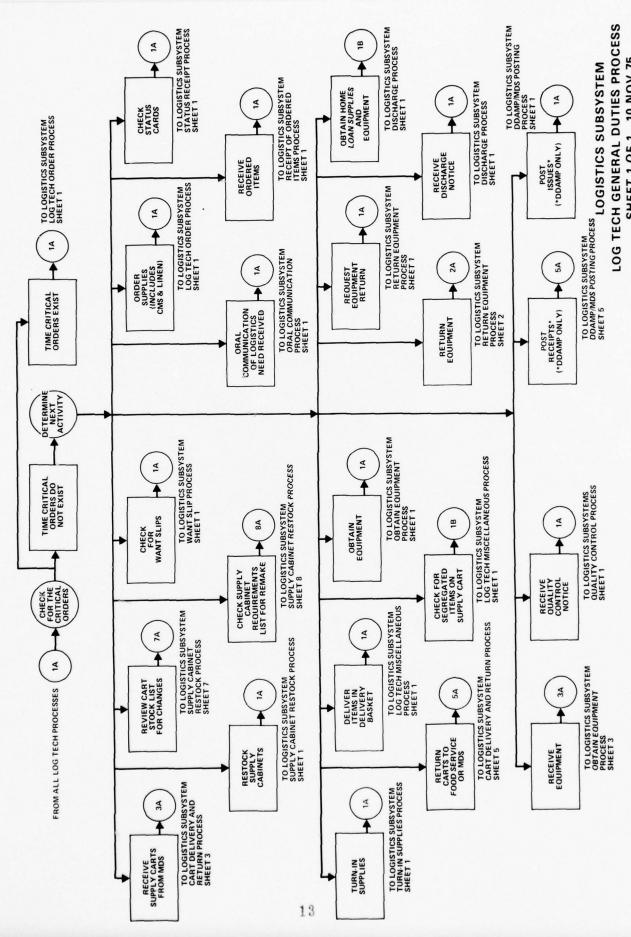
1/

FLOWCHART DIRECTORY

		LENGTH	PAGE
1	Overview of Materiel in Flow	1	12
2a	Log Tech General Duties	1	13
b	Cart Delivery and Return	6	14
С	Supply Cabinet Restock	9	20
d	Want slip	1	29
e	Oral Communication	1	30
f	Log Tech Order	8	31
g	Receipt of Ordered Items	5	39
h	Status Receipt	3	44
i	Turn-in Supplies	2	47
j	Log Tech Miscellaneous	1	49
k	Obtain Equipment	3	50
1	Return Equipment	2	53
m	Discharge	4	55
n	Quality Control	2	59
0	DDAMP/MDS Posting	7	61
3a	MDS General Duties	1	68
b	Cart Inventory	1	69
С	Restock Computation	2	70
d	Cart Restock	3	72
е	MDS Receipts	2 .	75
f	Process Receiving Documents	1	77
g	MDS Response to Orders	4	78
h	Customer Accounting	2	82
i	Cart List Preparation	3 7	84
4	Equipment Pool Activities	7	87
5	MDS Document Flow	1	94
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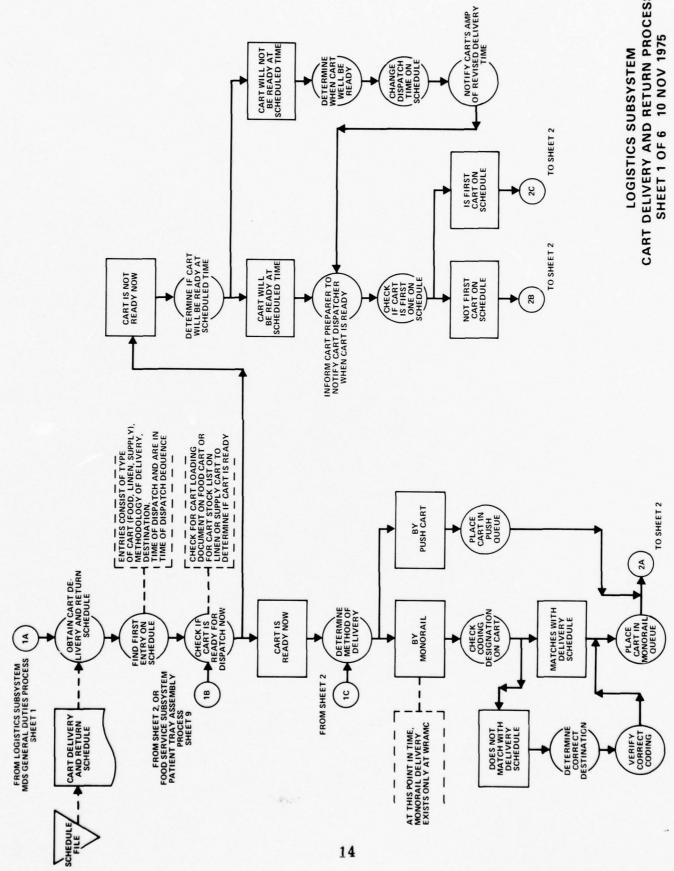


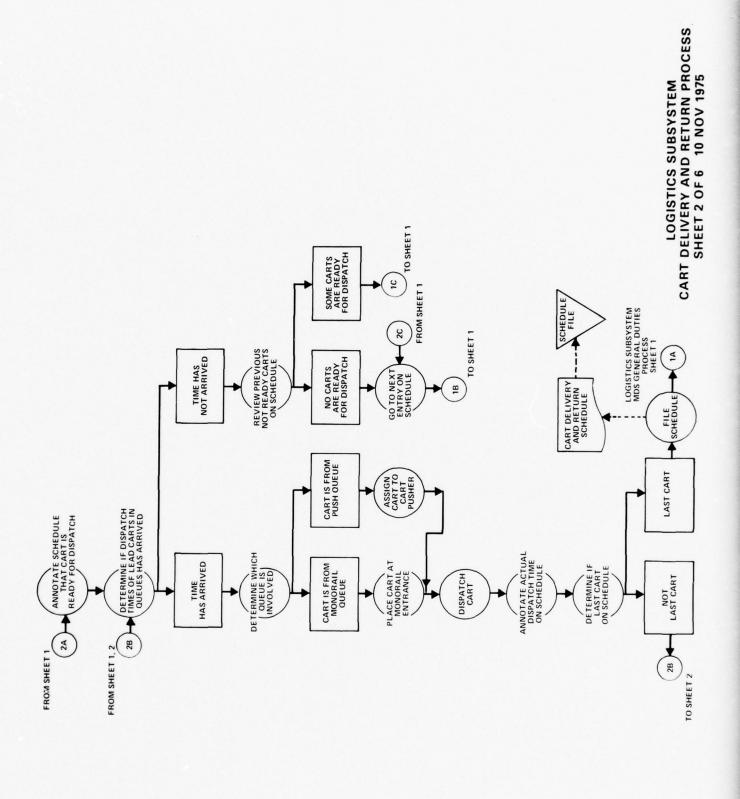
LOGISTICS SUBSYSTEM OVERVIEW OF MATERIEL INFLOW SHEET 1 OF 1 30 DEC 1975

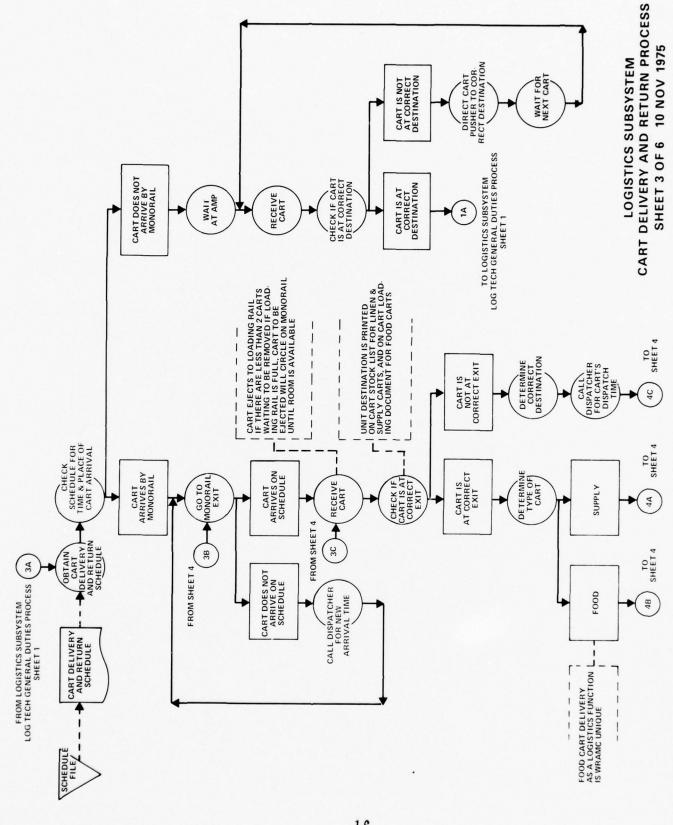


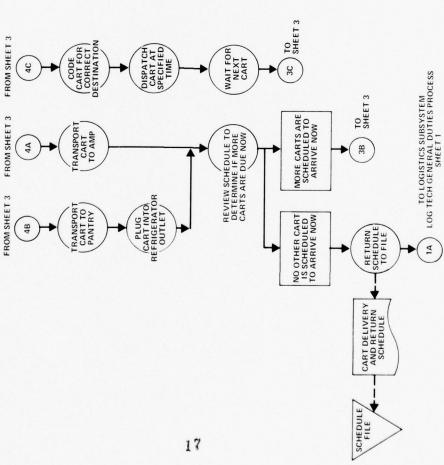
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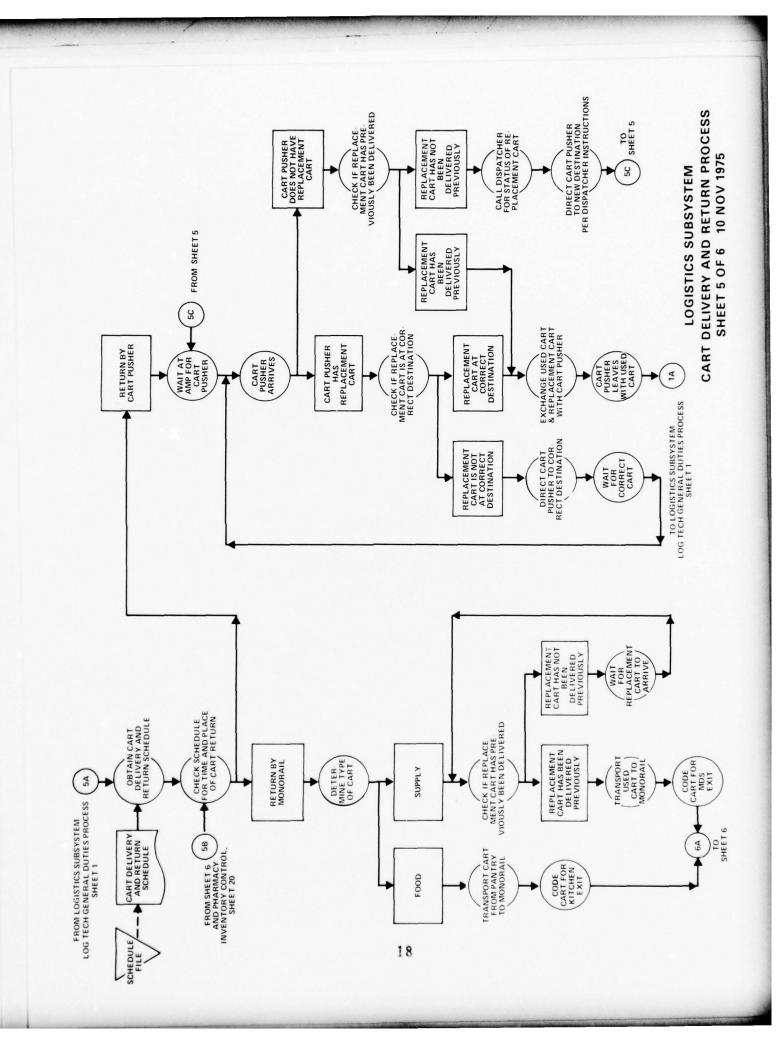
CART DELIVERY AND RETURN PROCESS **LOGISTICS SUBSYSTEM**

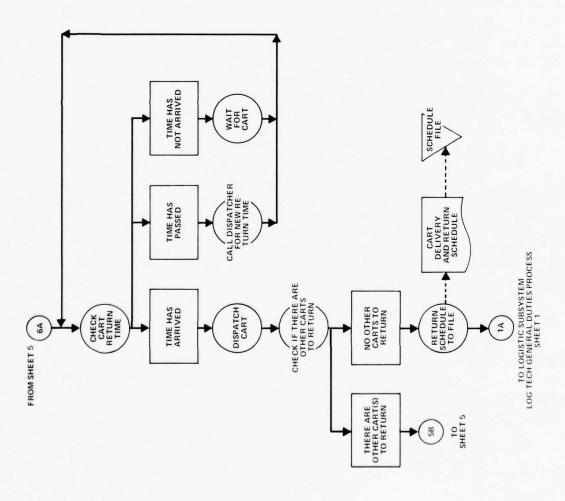


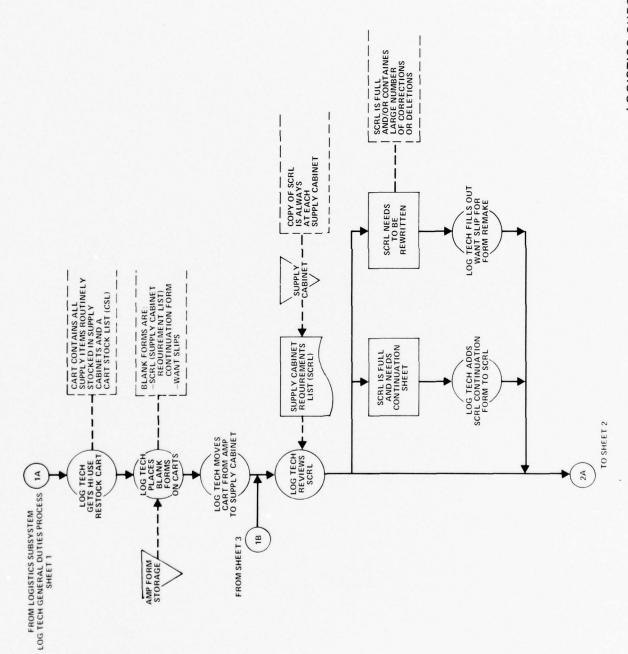


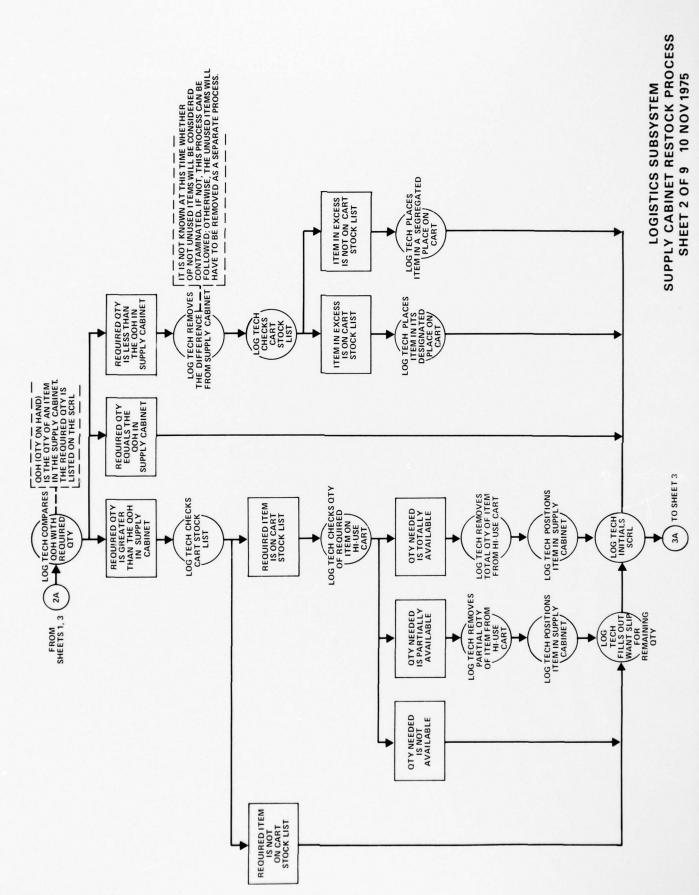


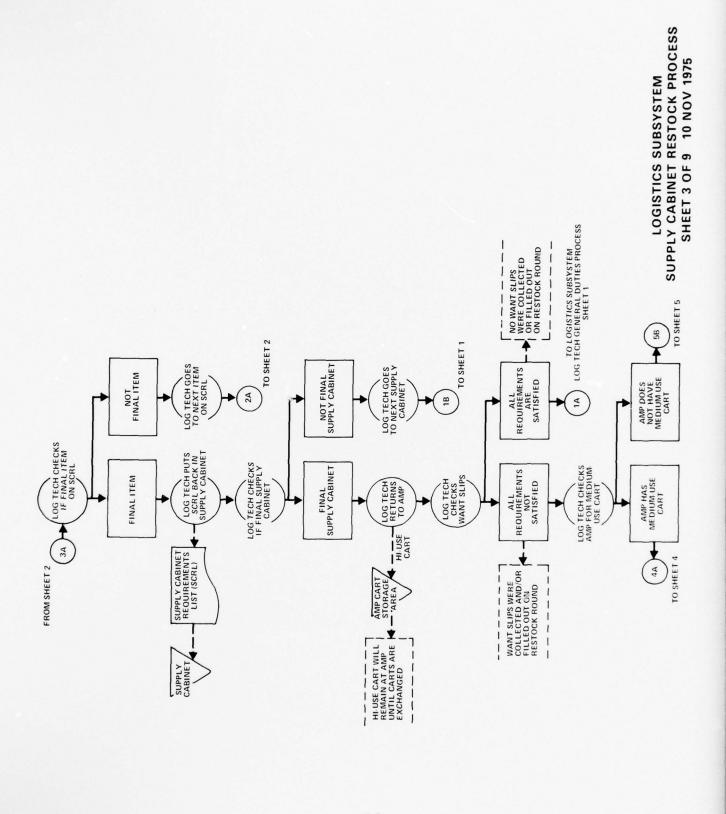


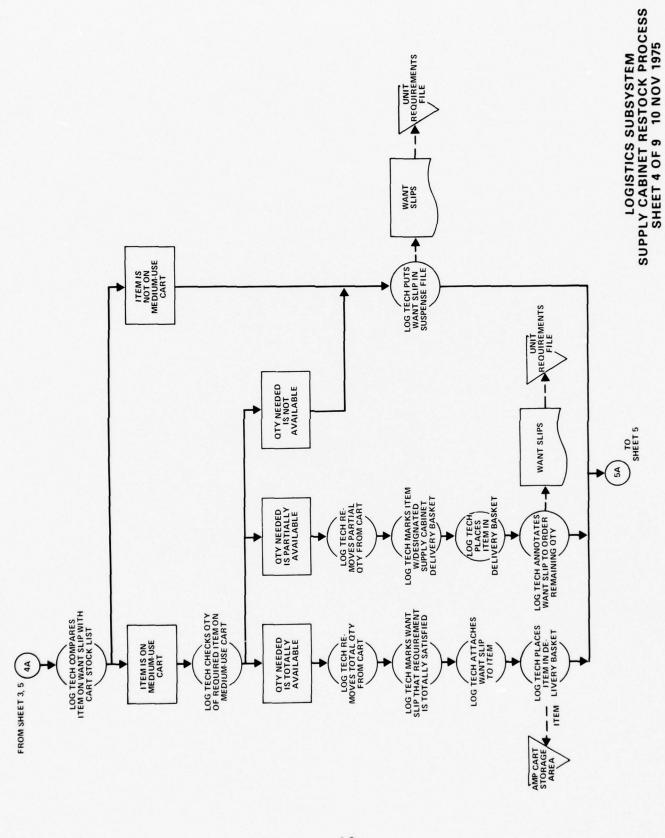


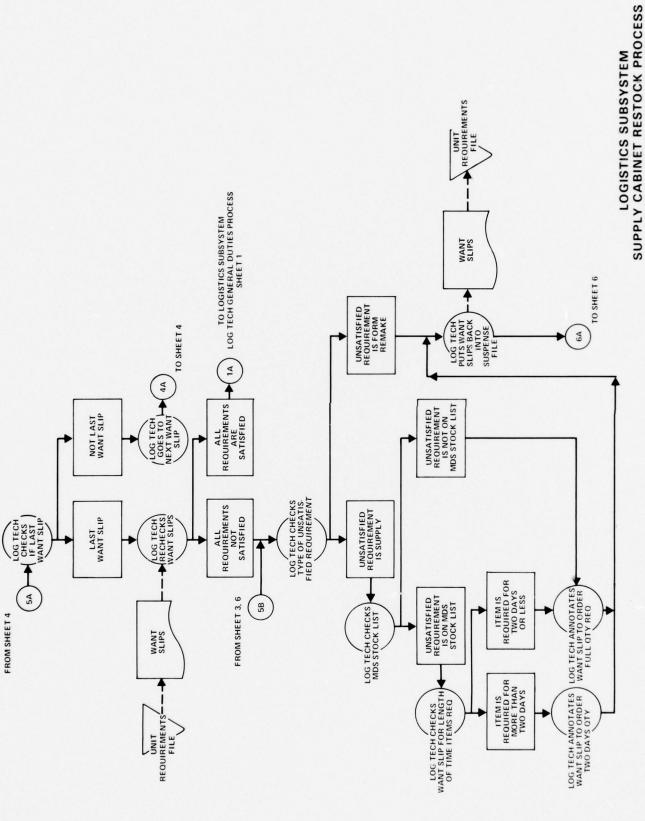






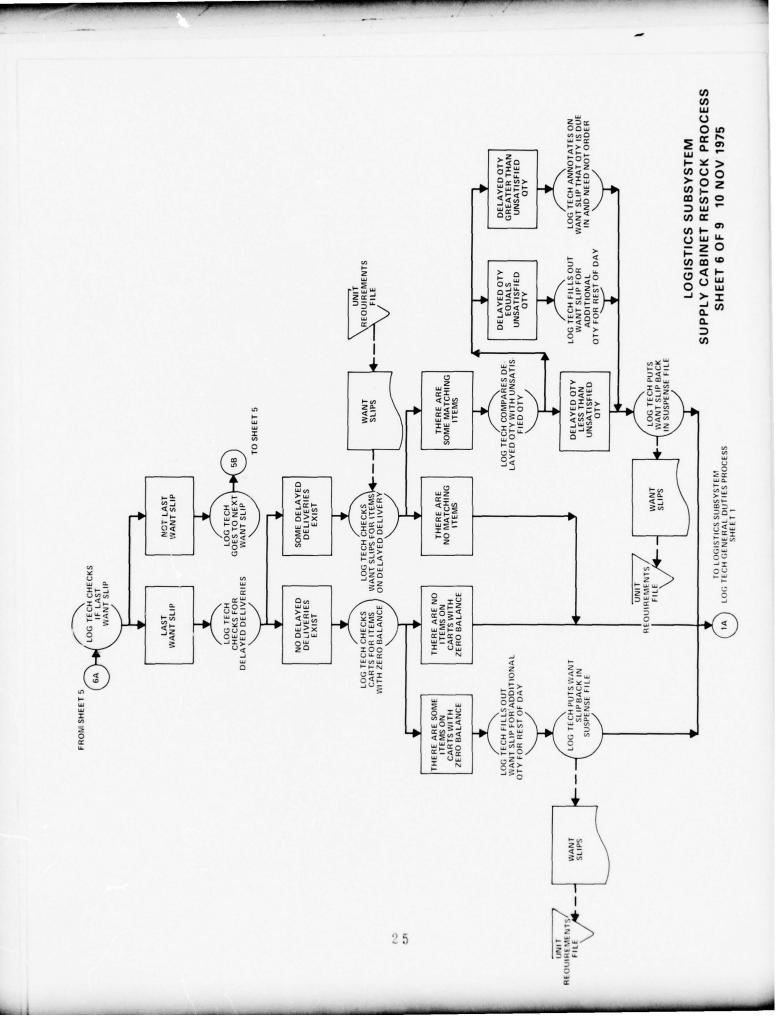


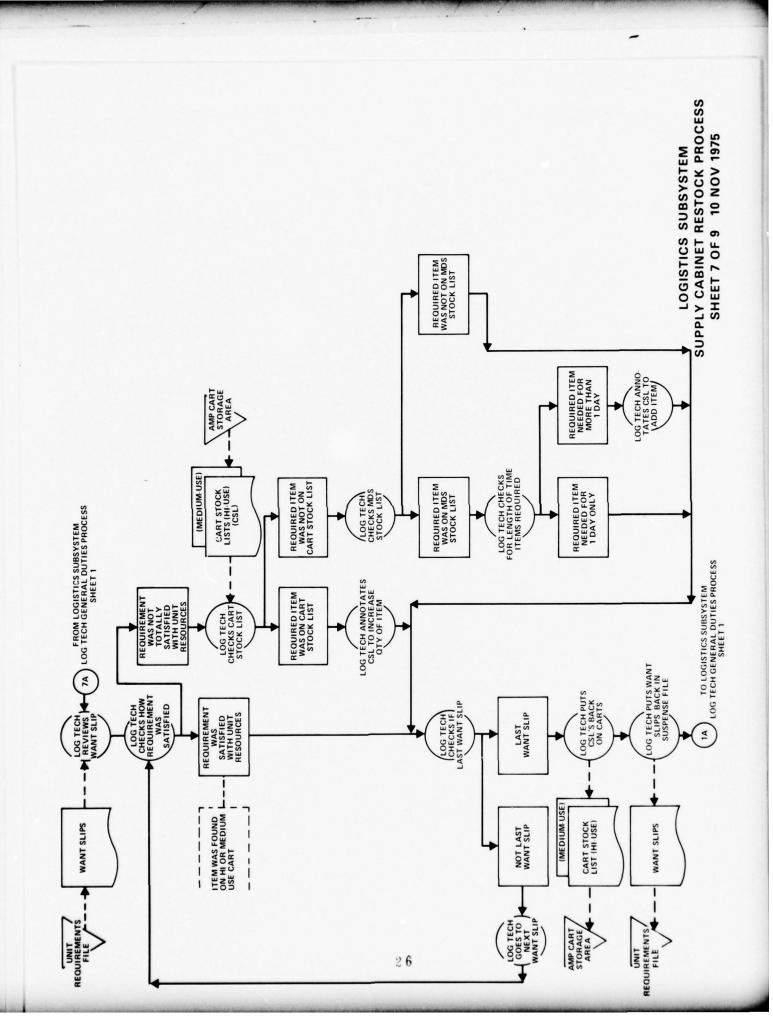


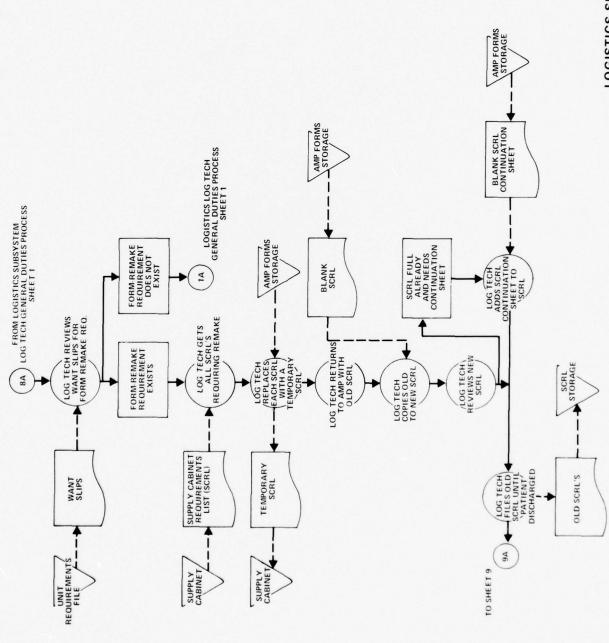


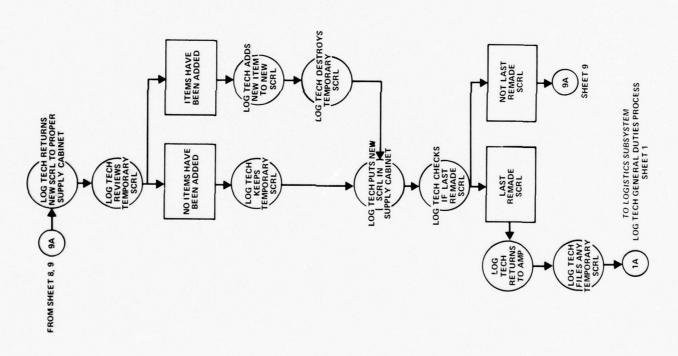
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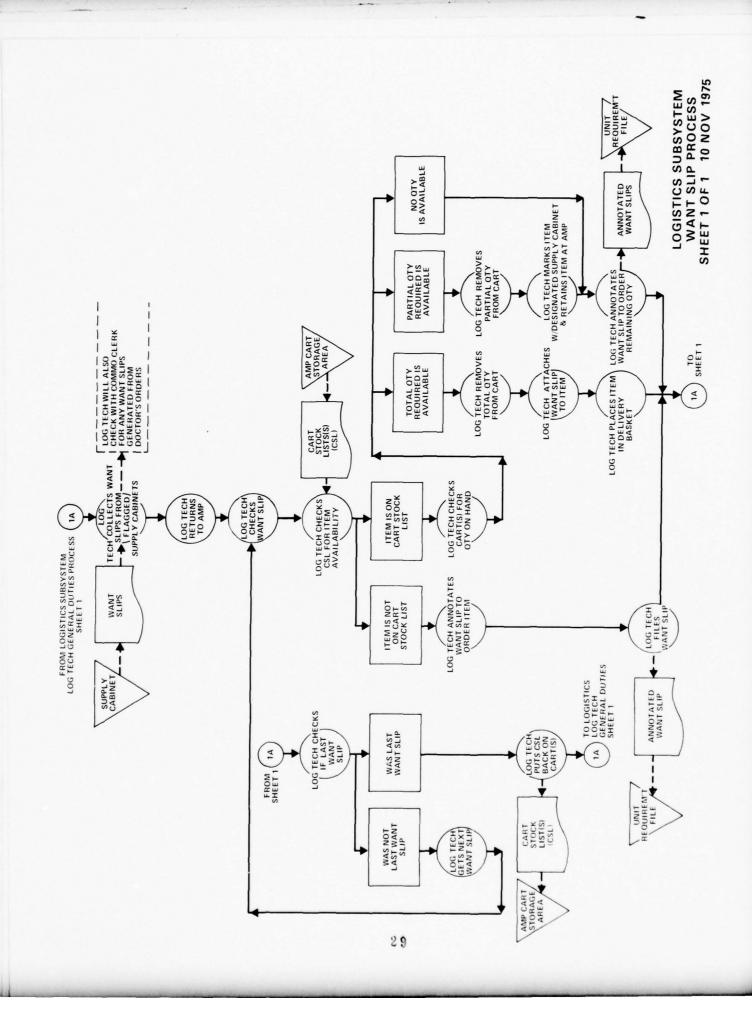


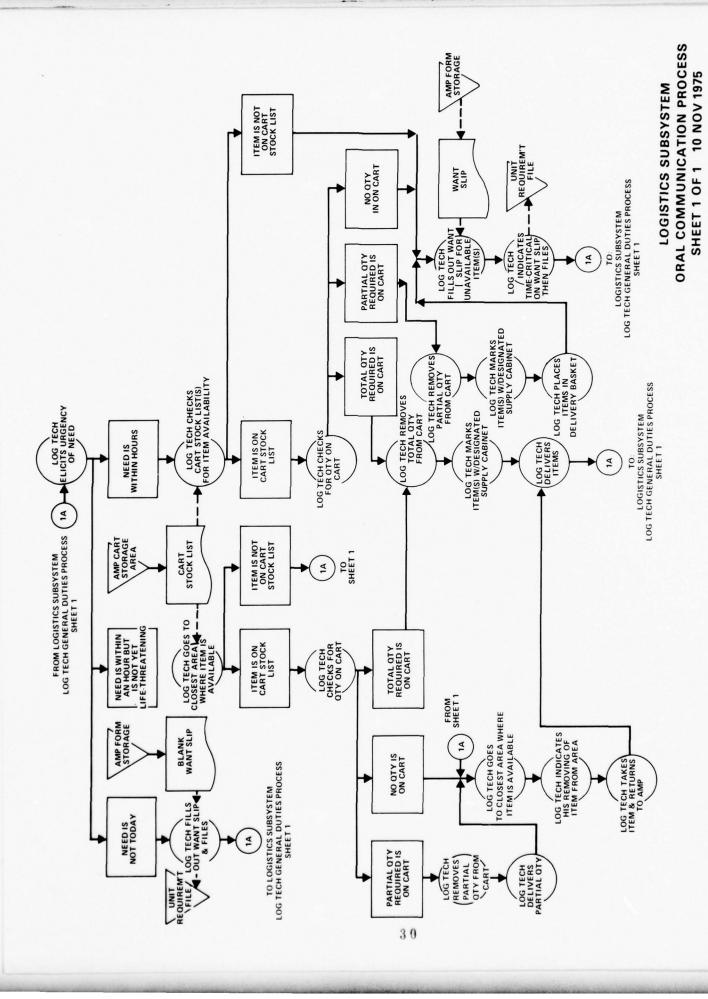


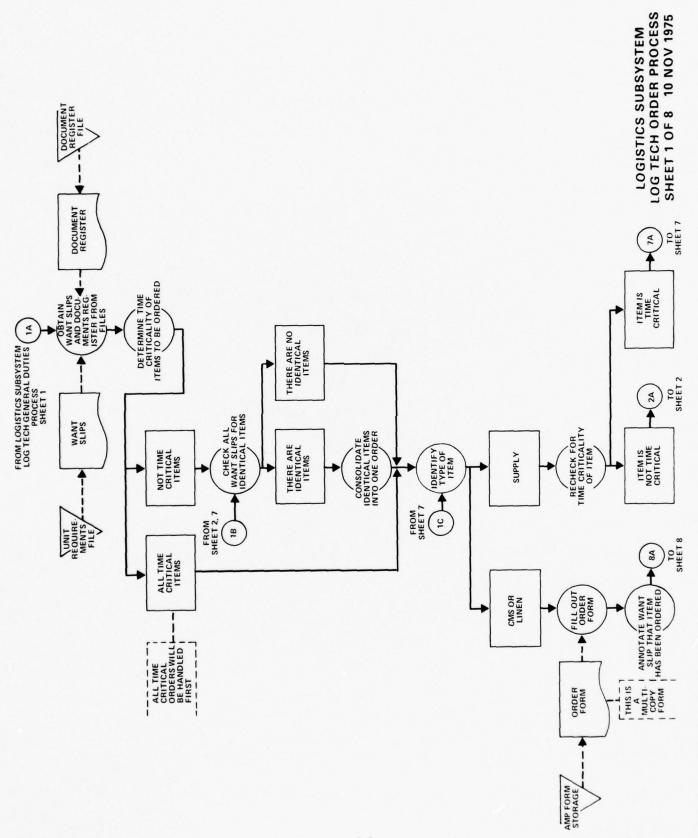


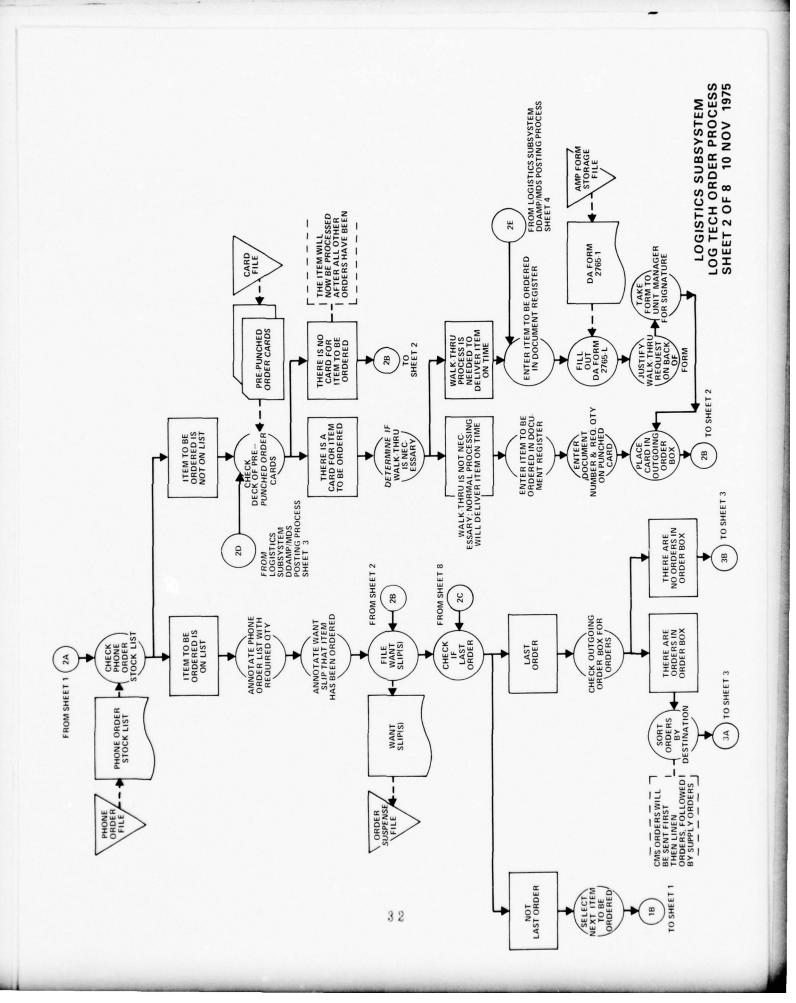


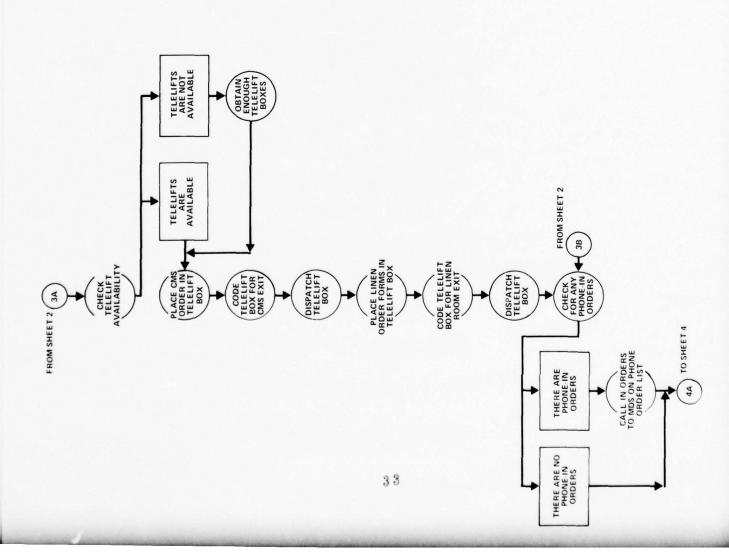
LOGISTICS SUBSYSTEM SUPPLY CABINET RESTOCK PROCESS SHEET 9 OF 9 10 NOV 1975

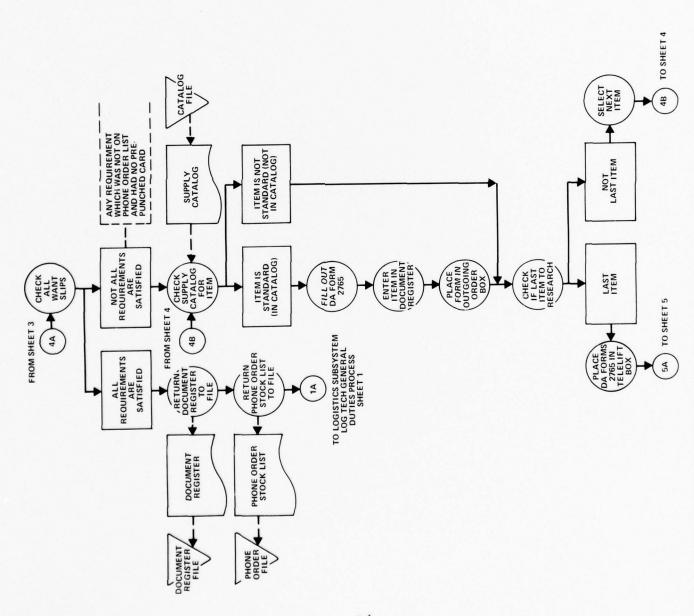


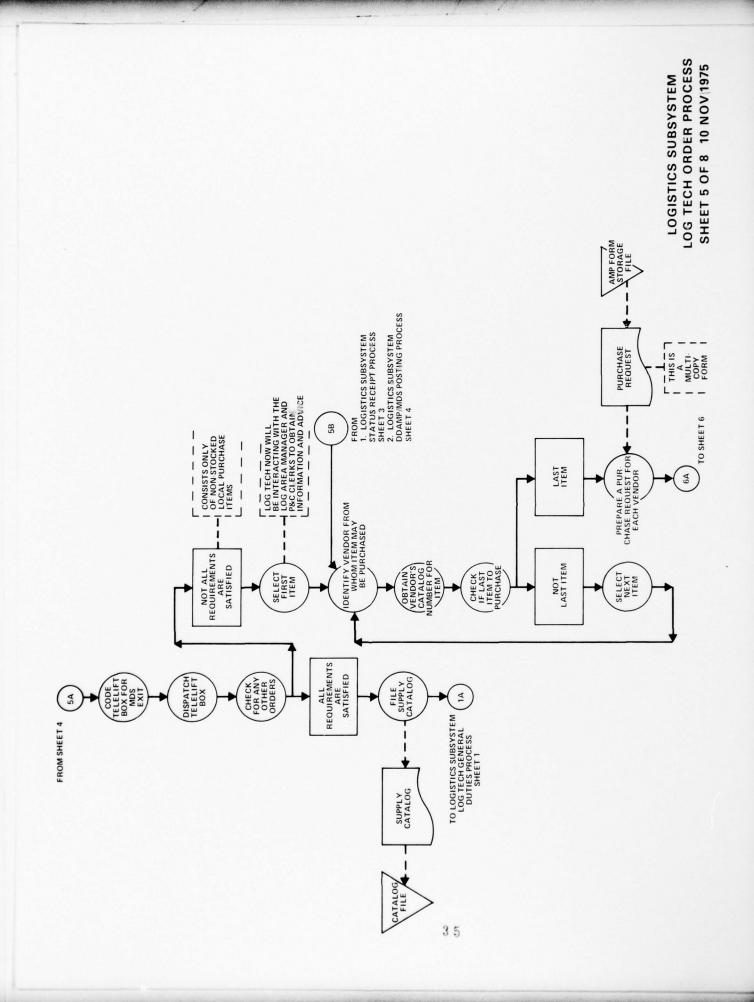


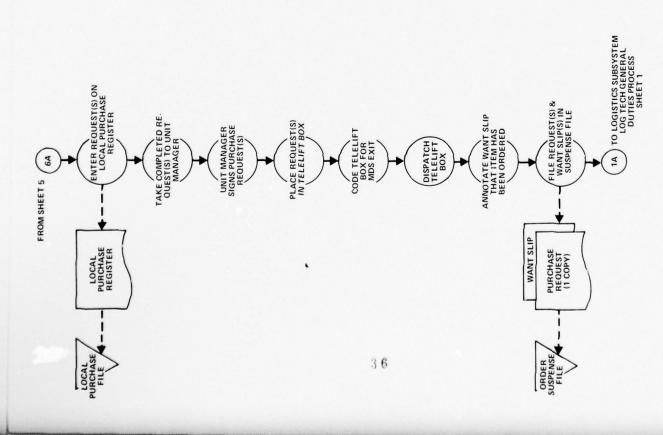


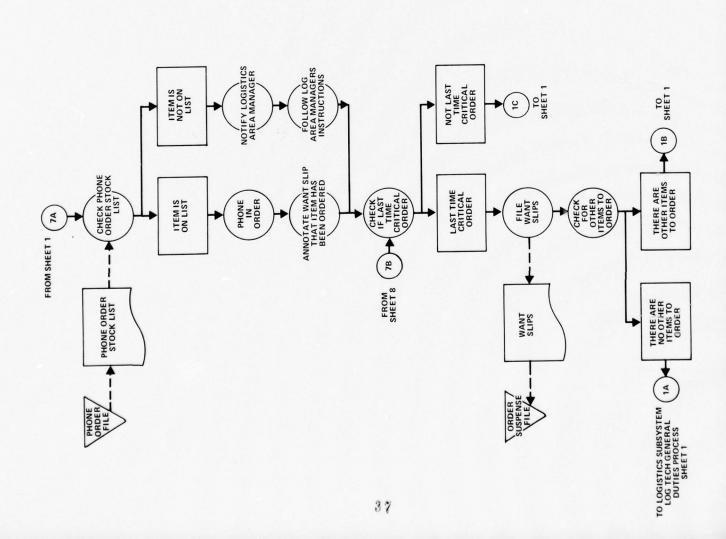


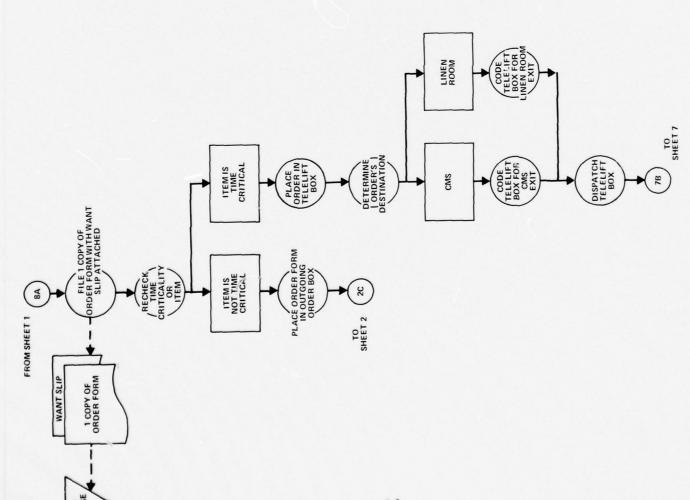


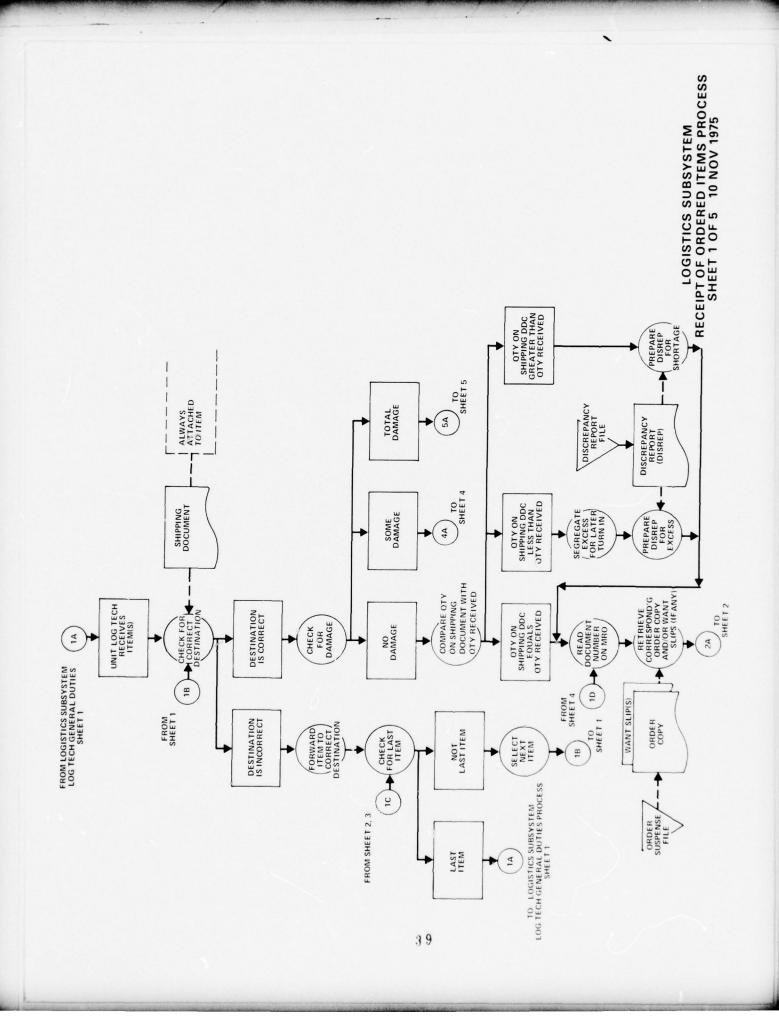


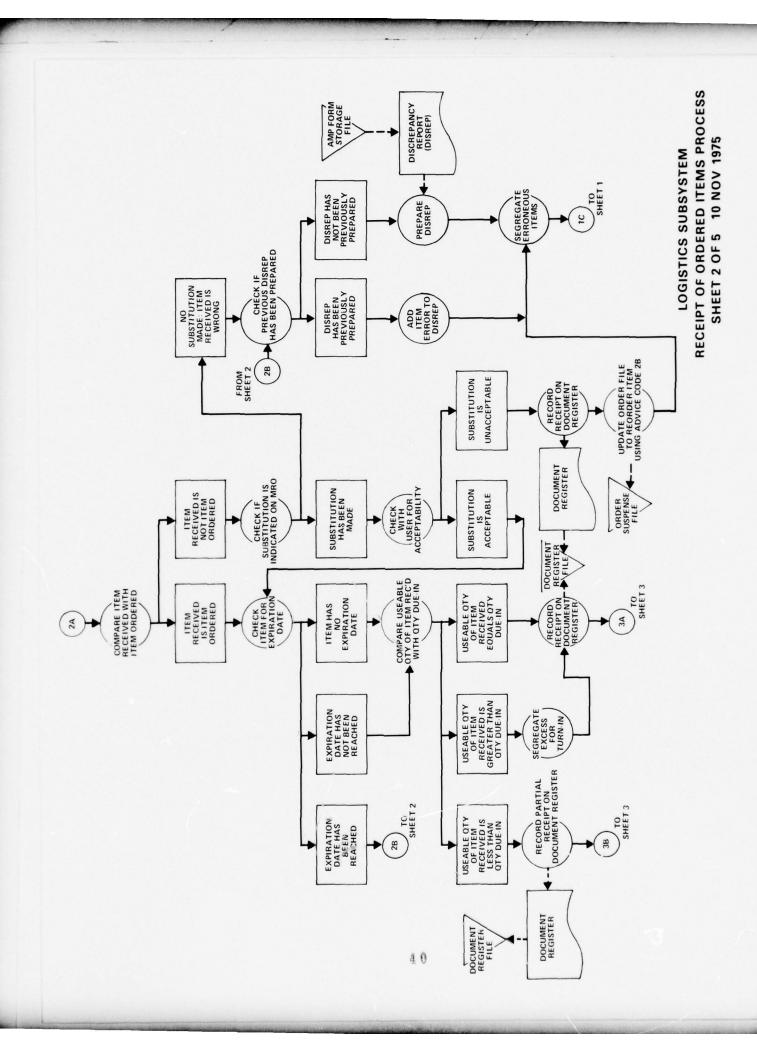


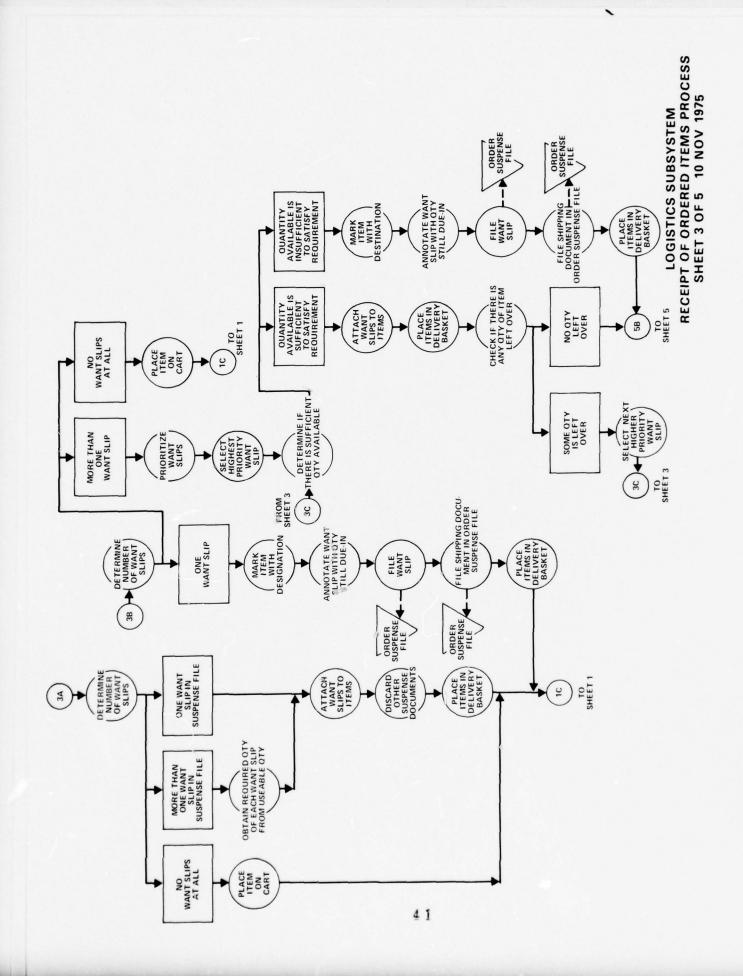


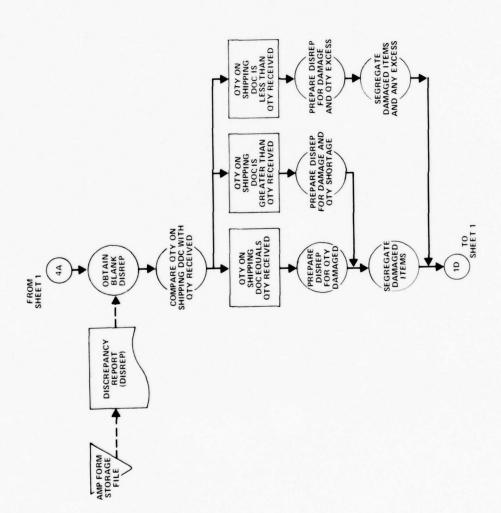


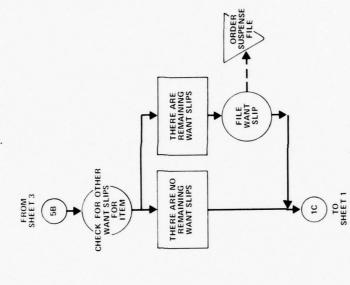


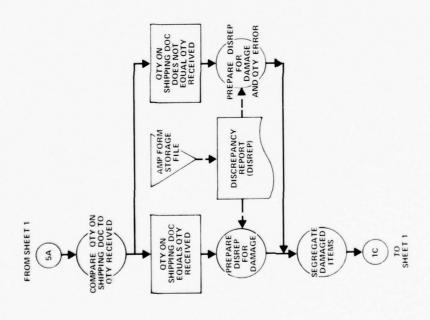


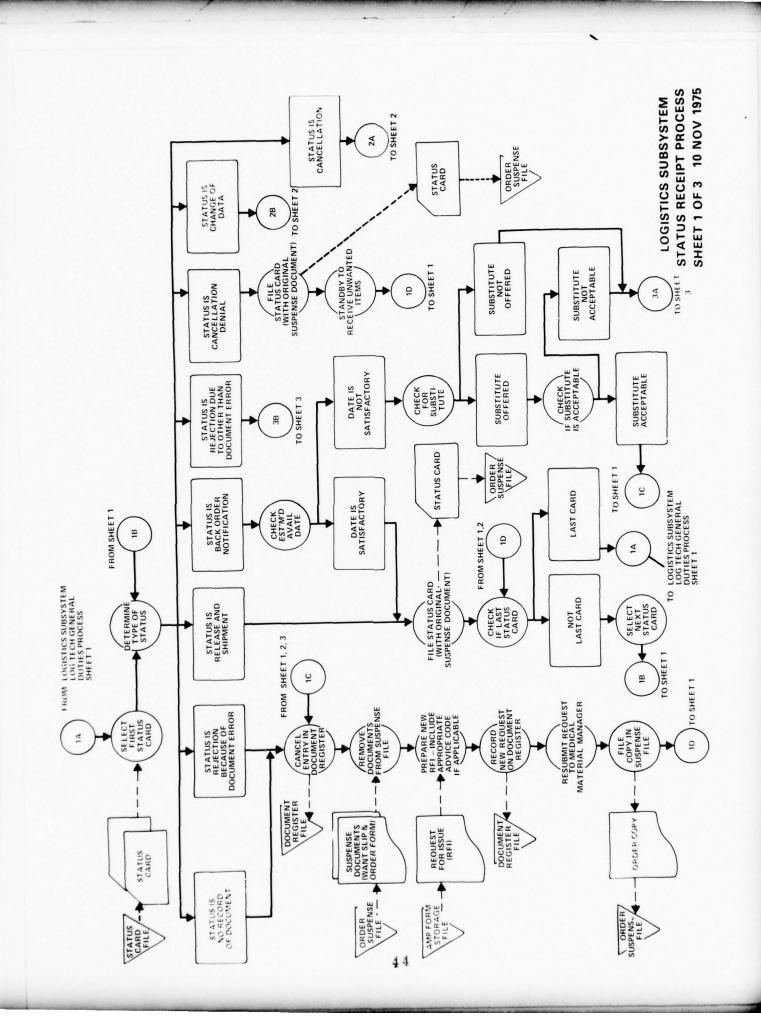


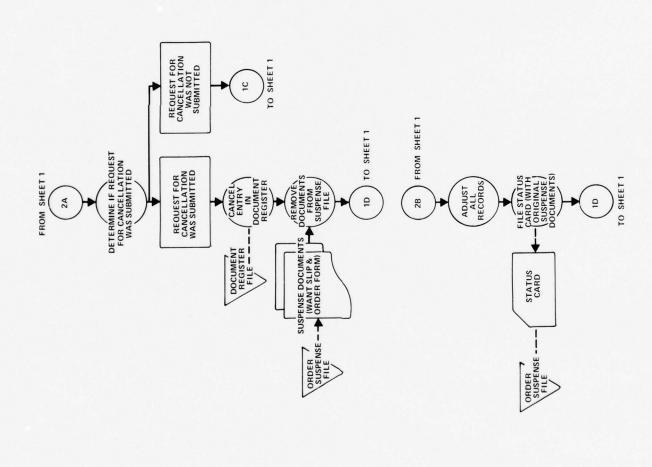


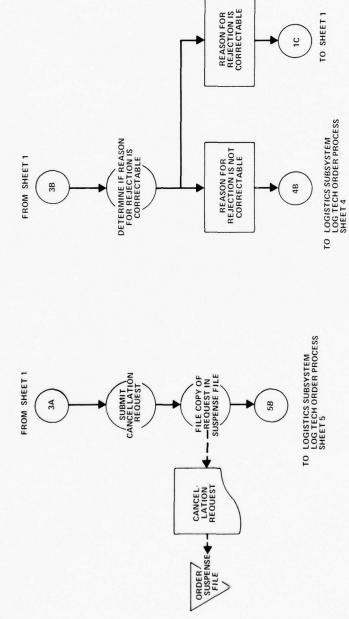


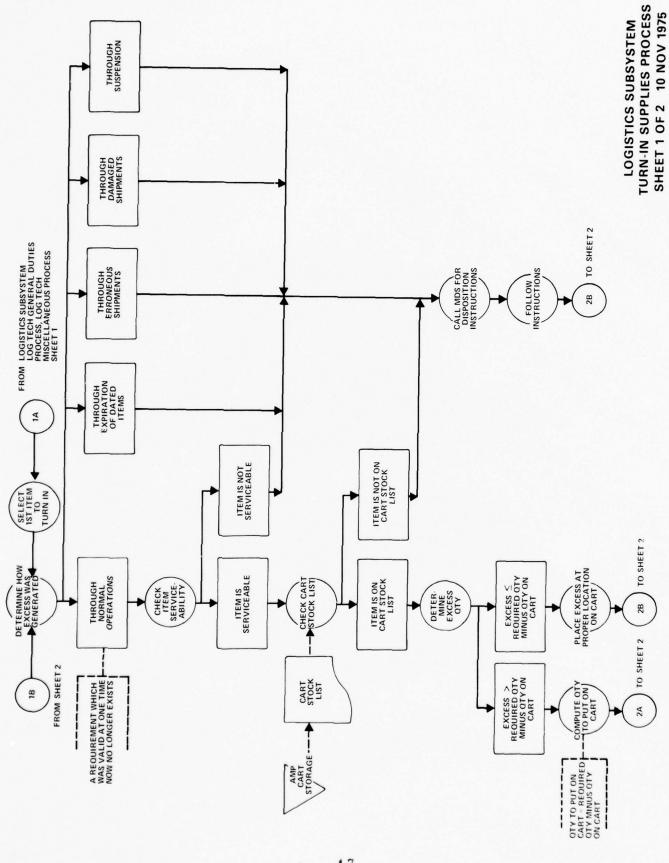


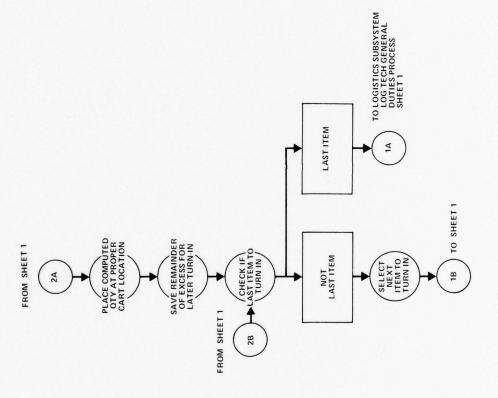


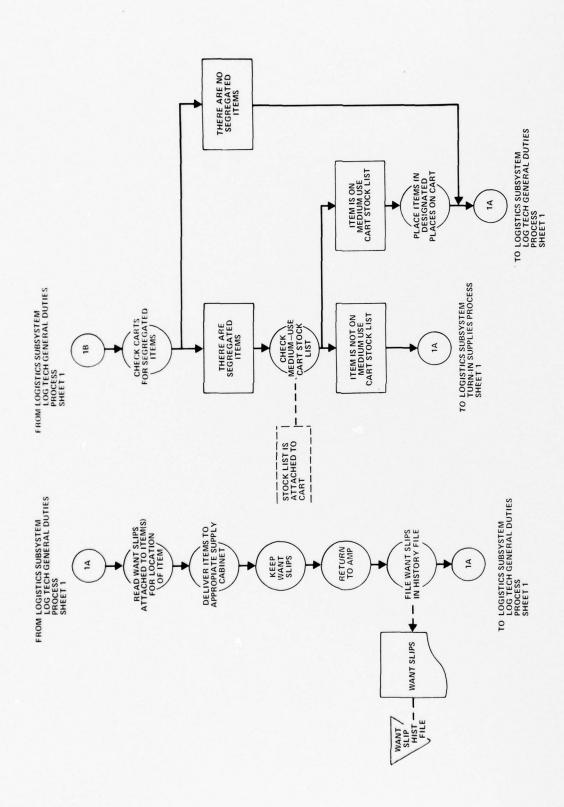




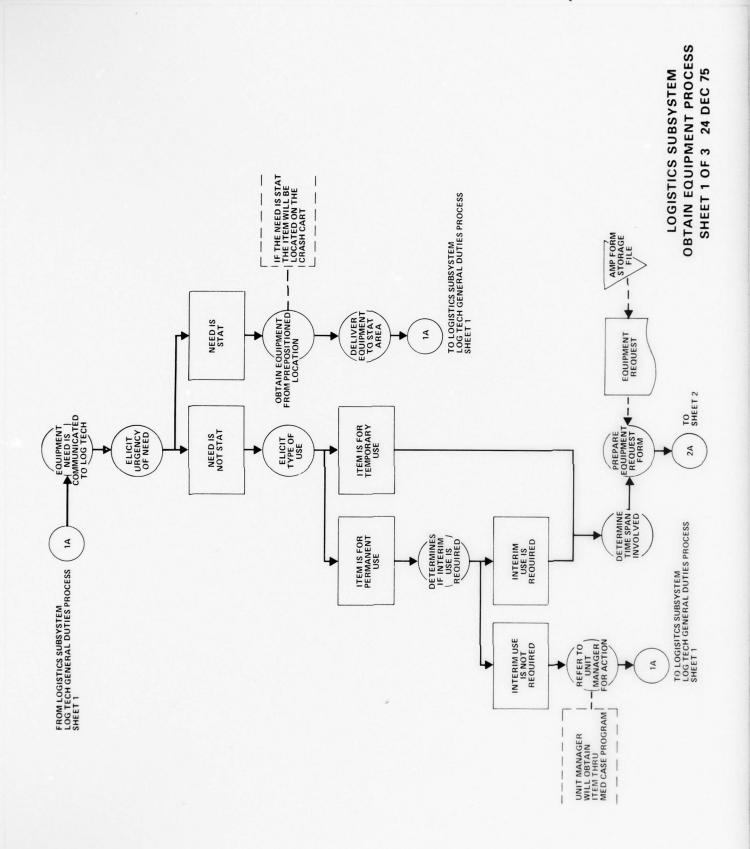


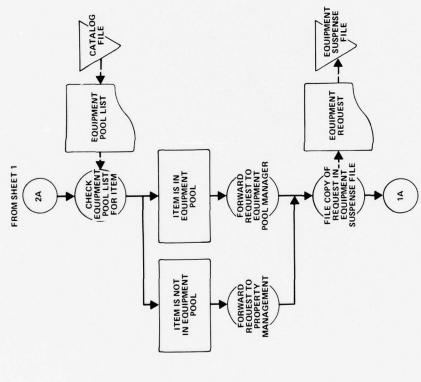






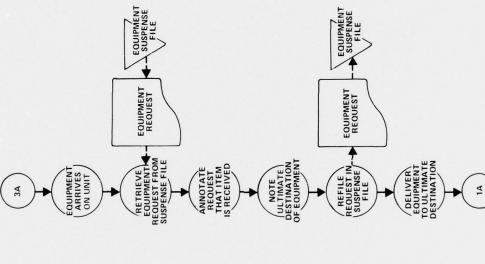
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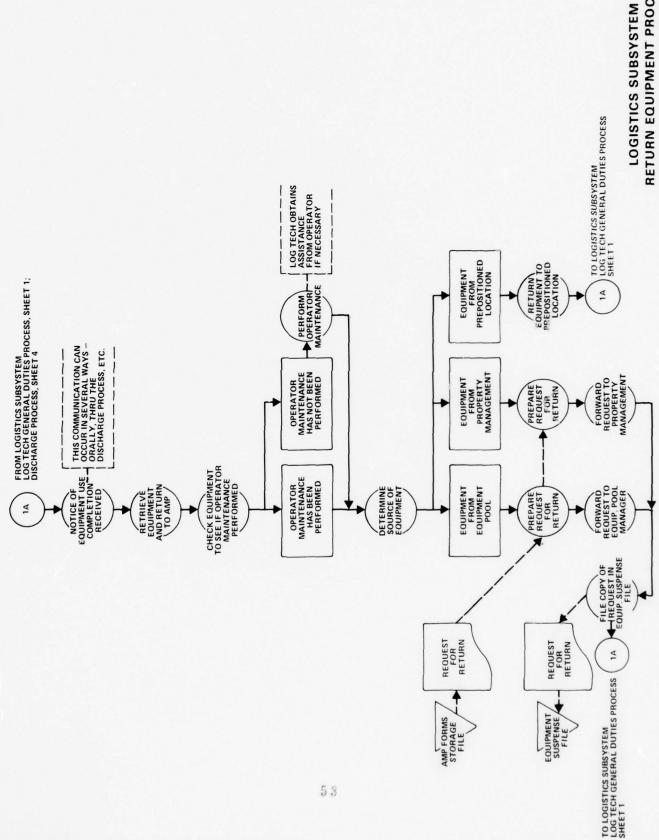


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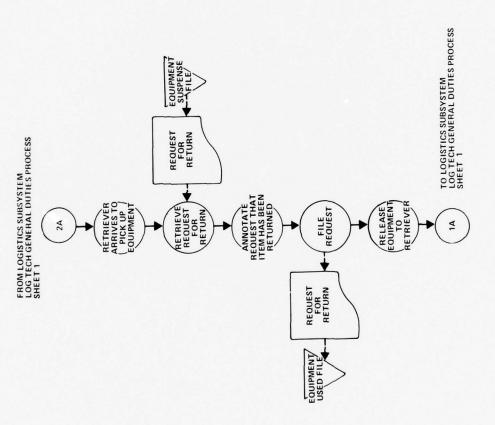


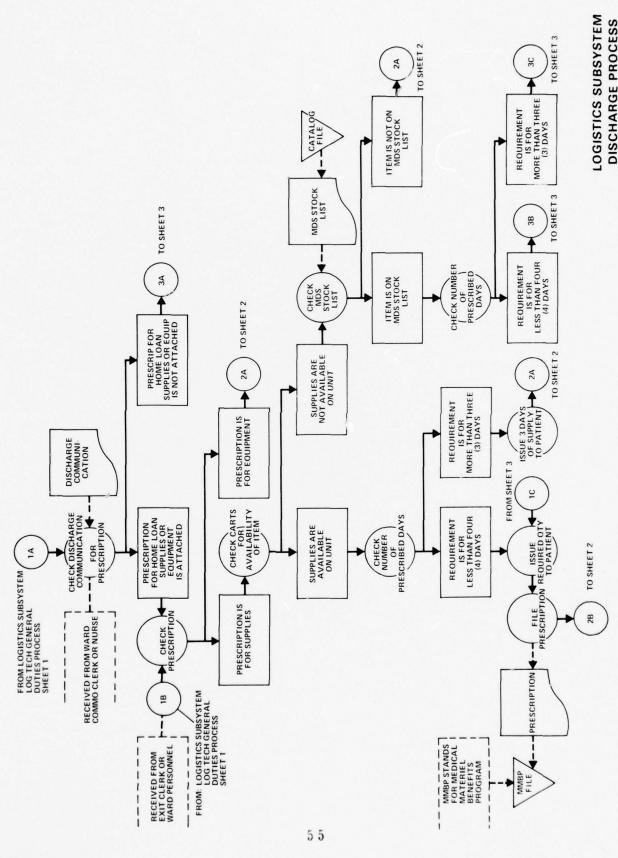


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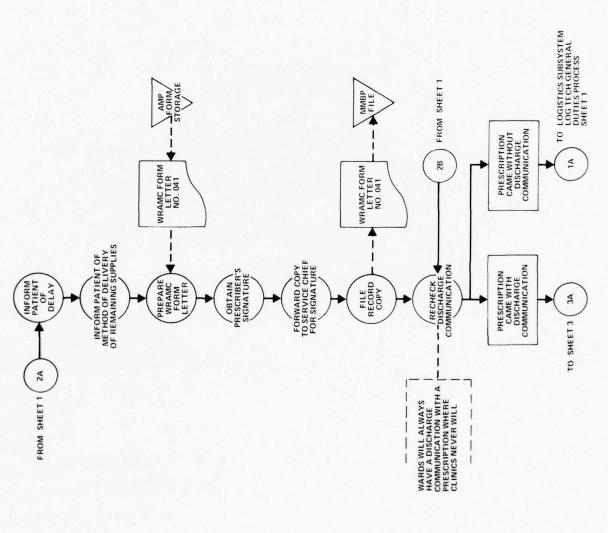


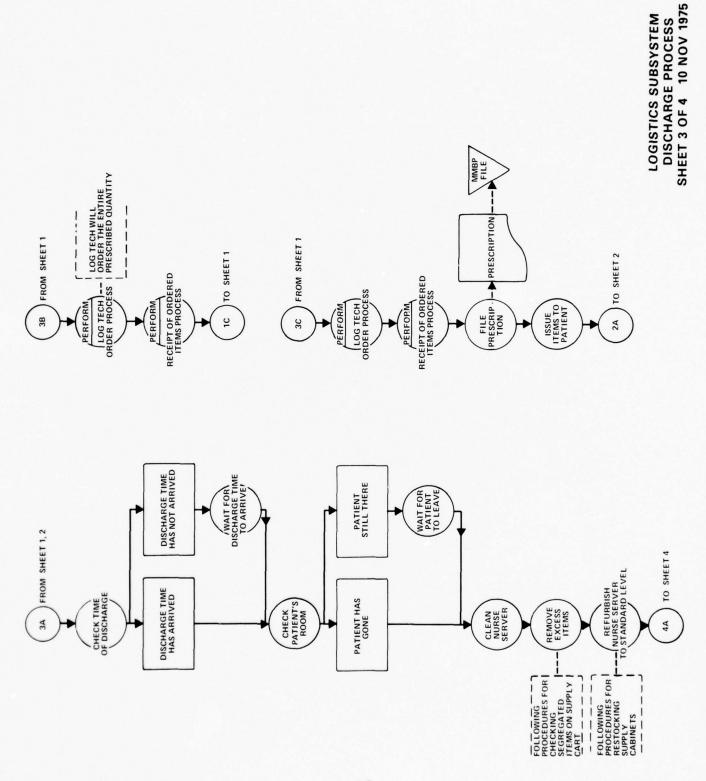
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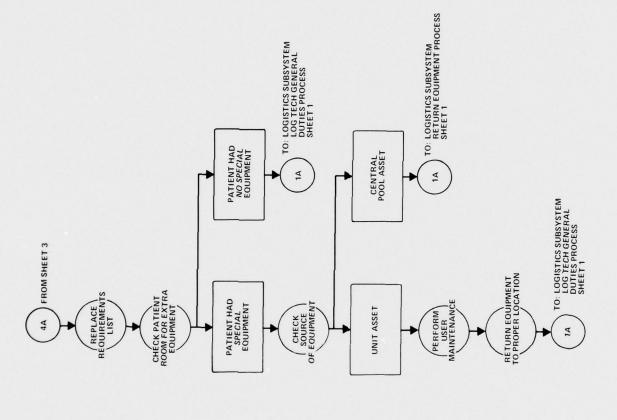


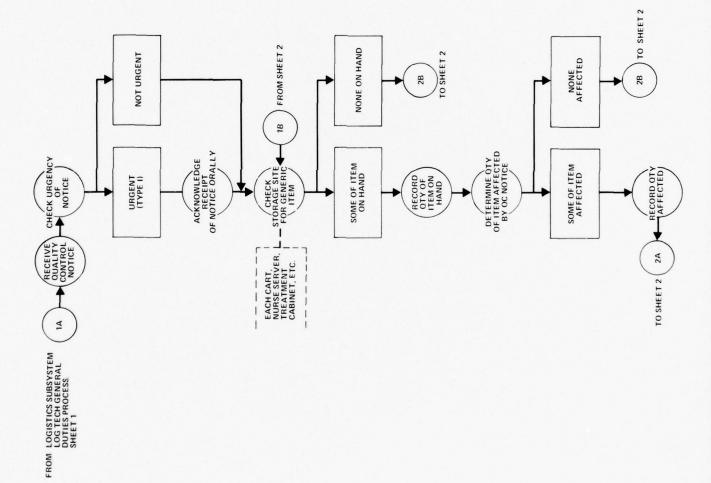


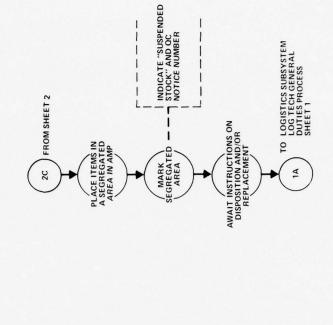
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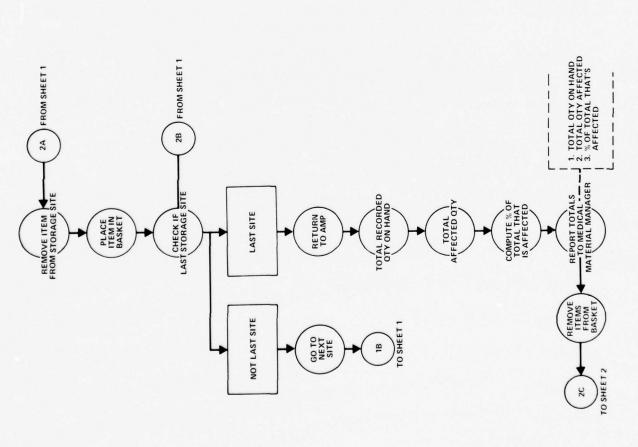


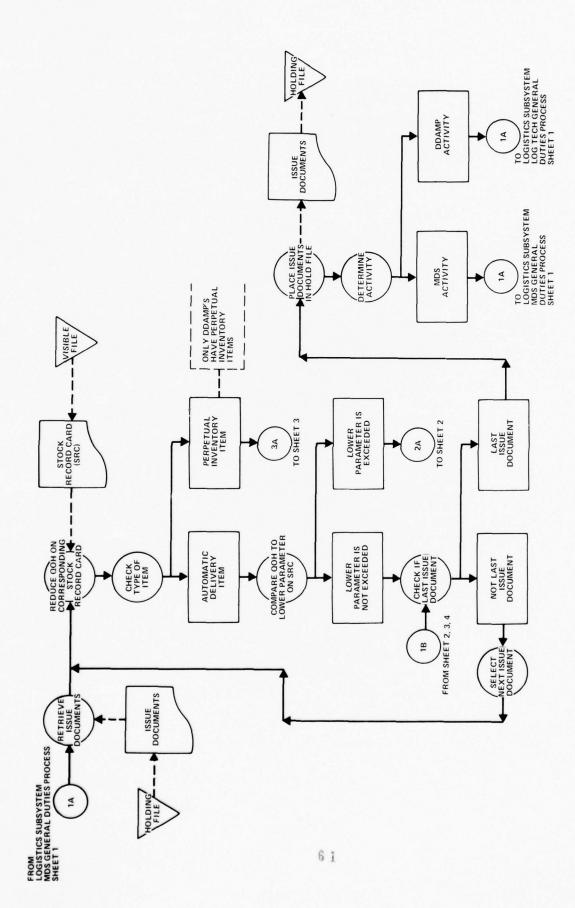




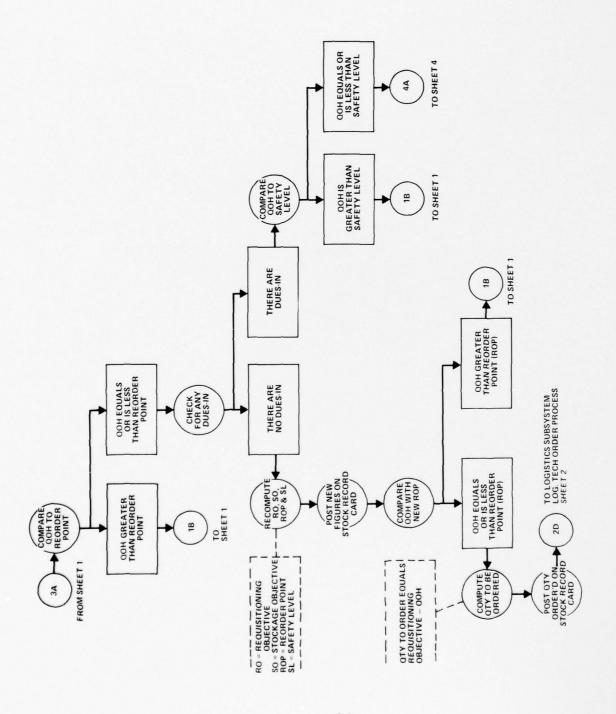


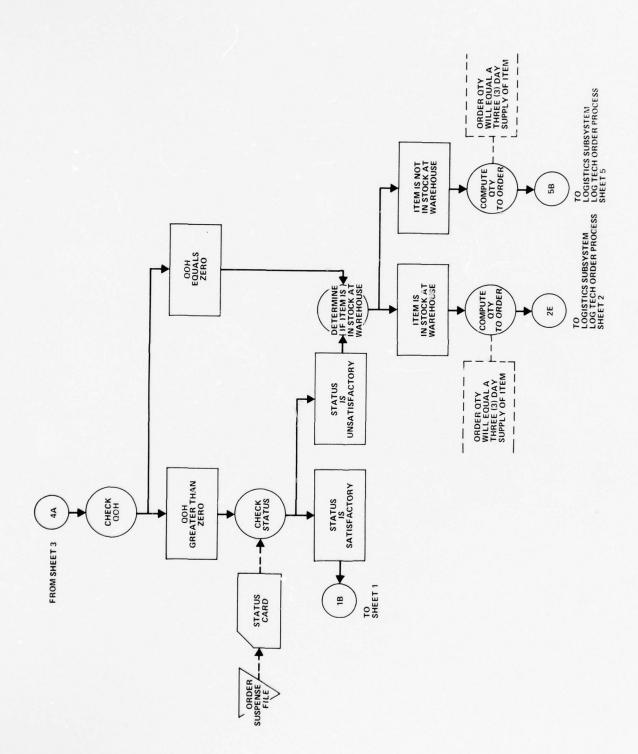


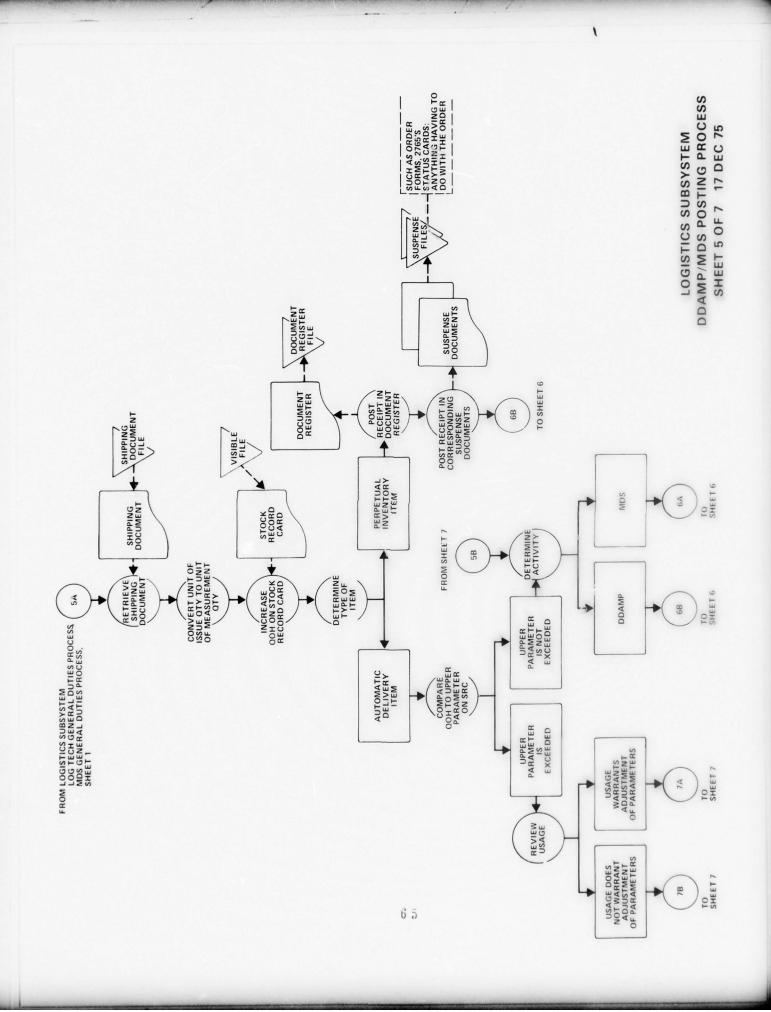


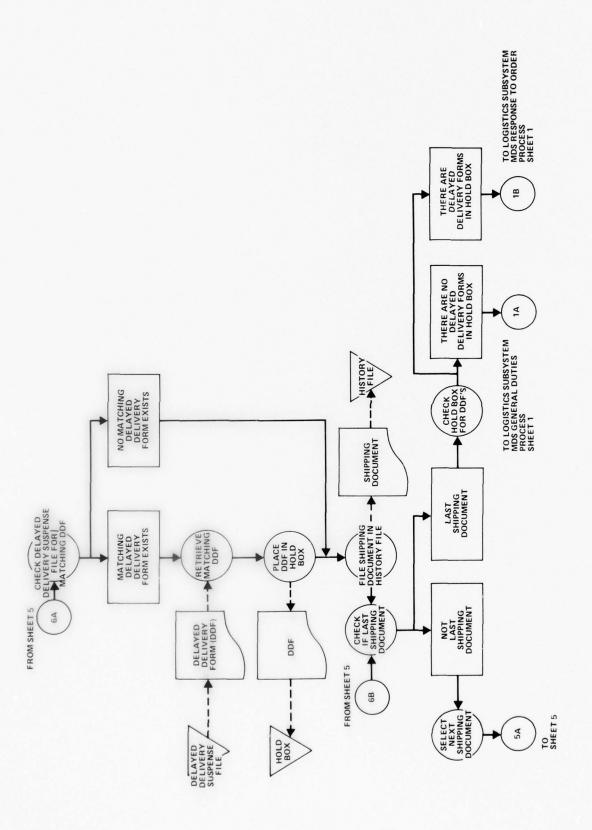


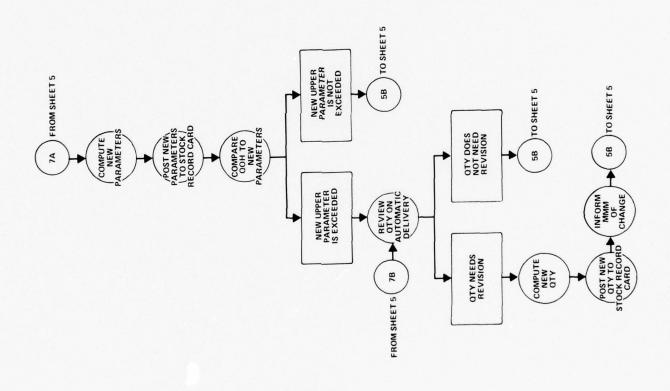
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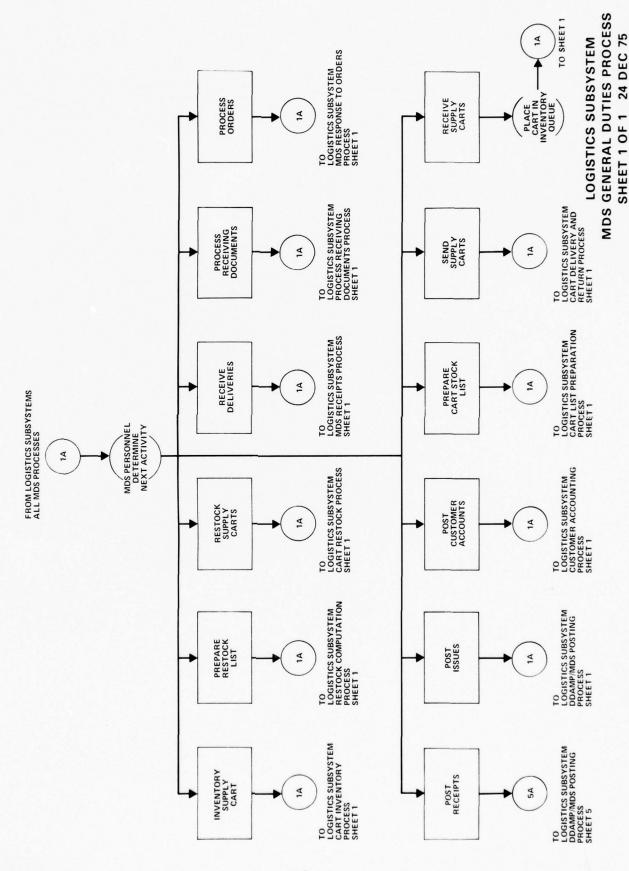


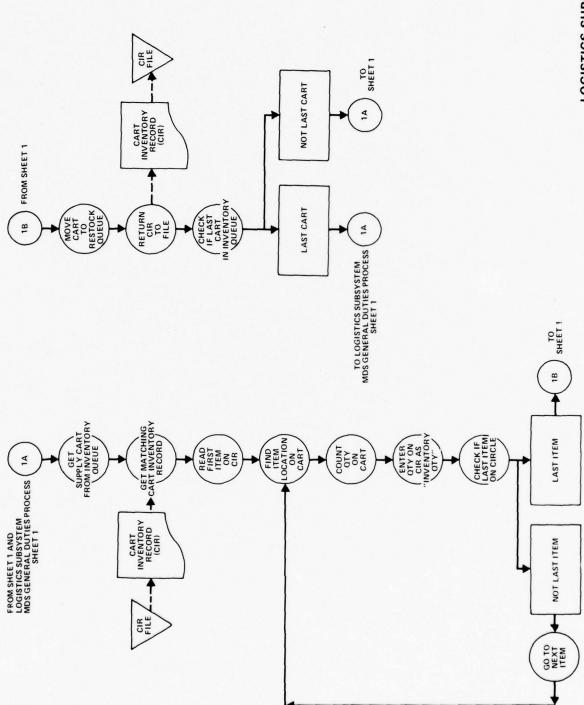


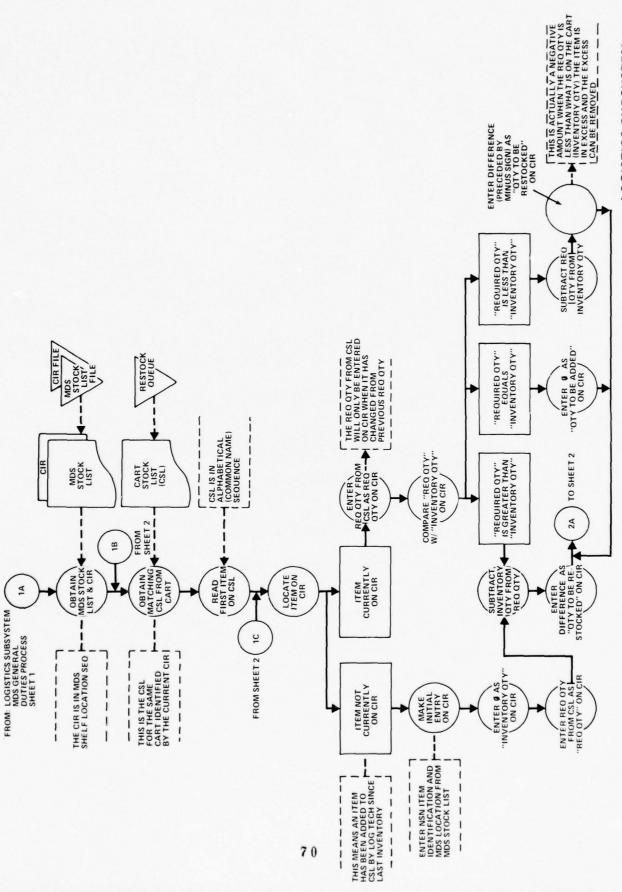


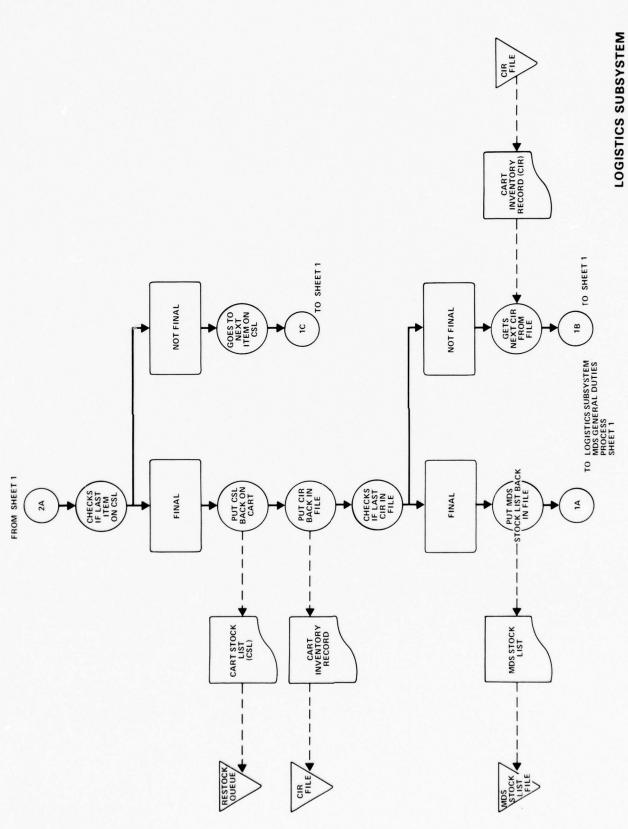




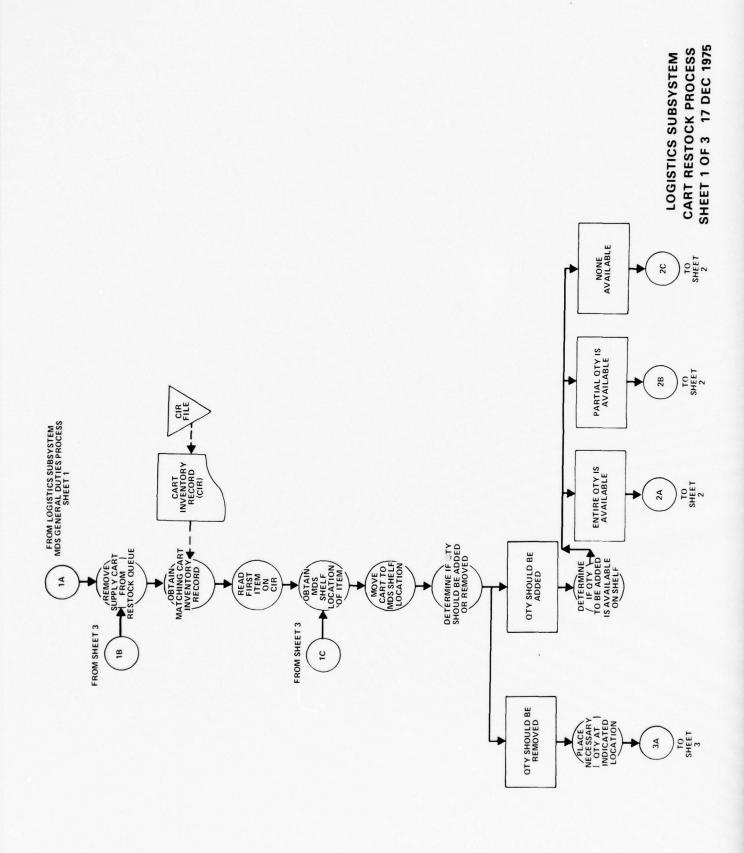


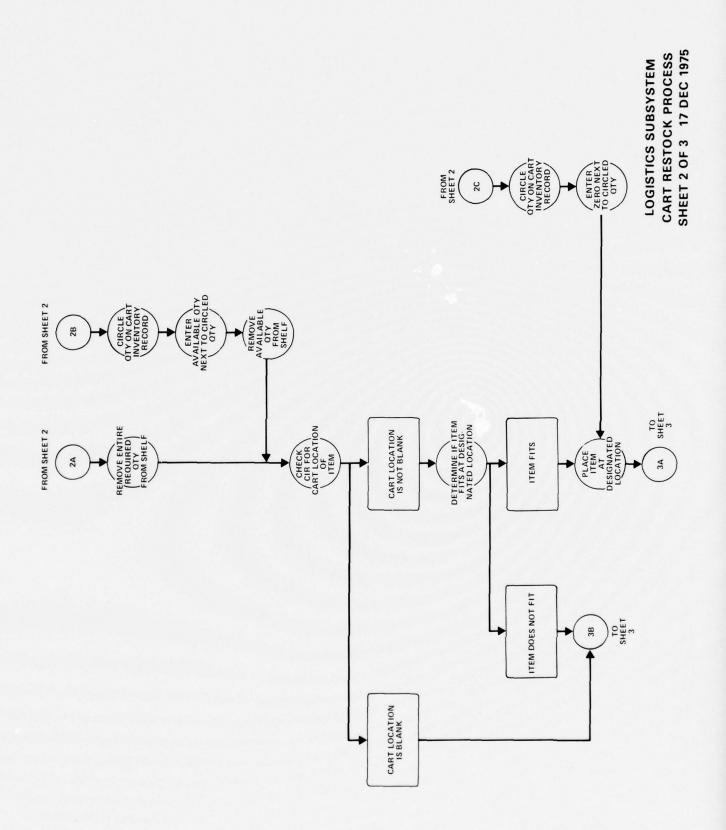


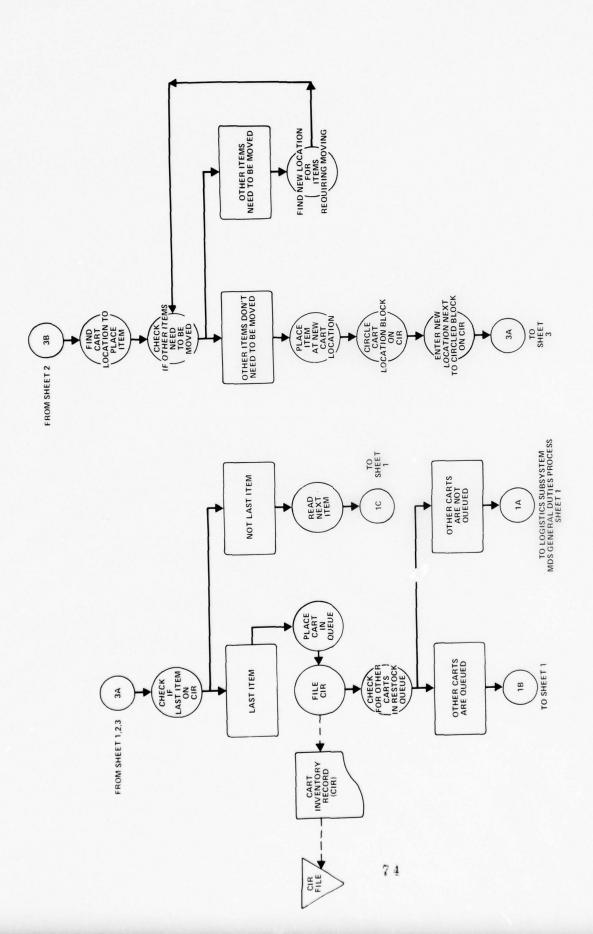




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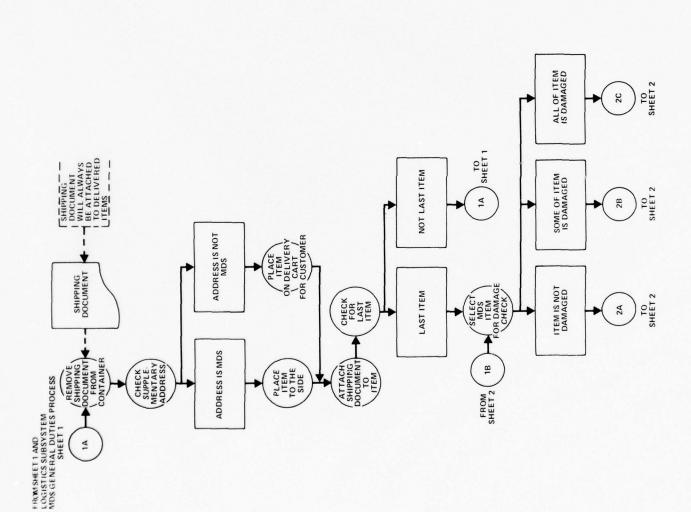






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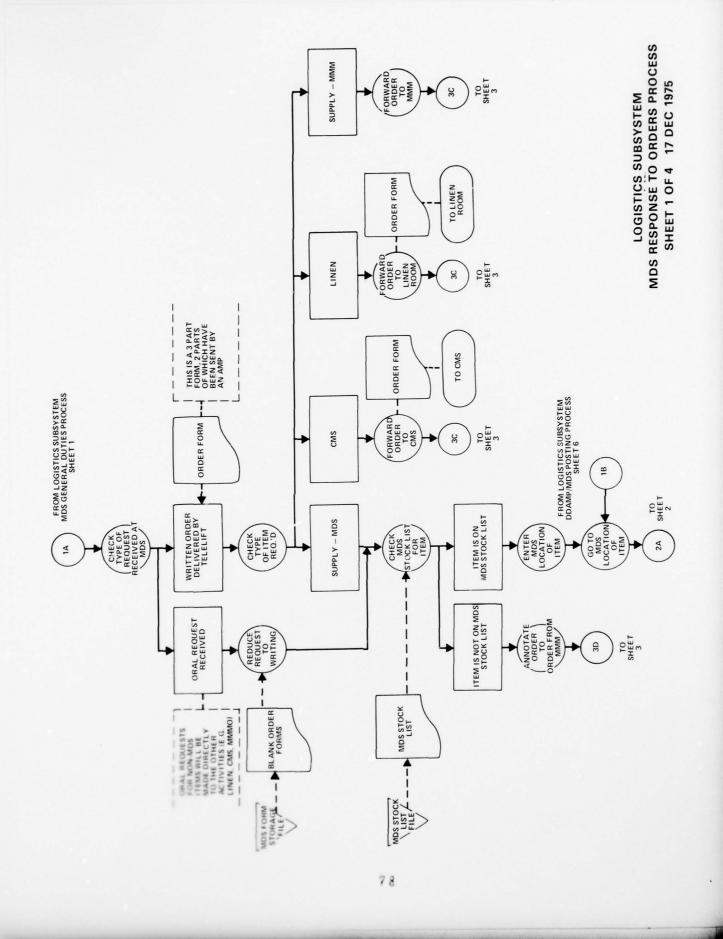
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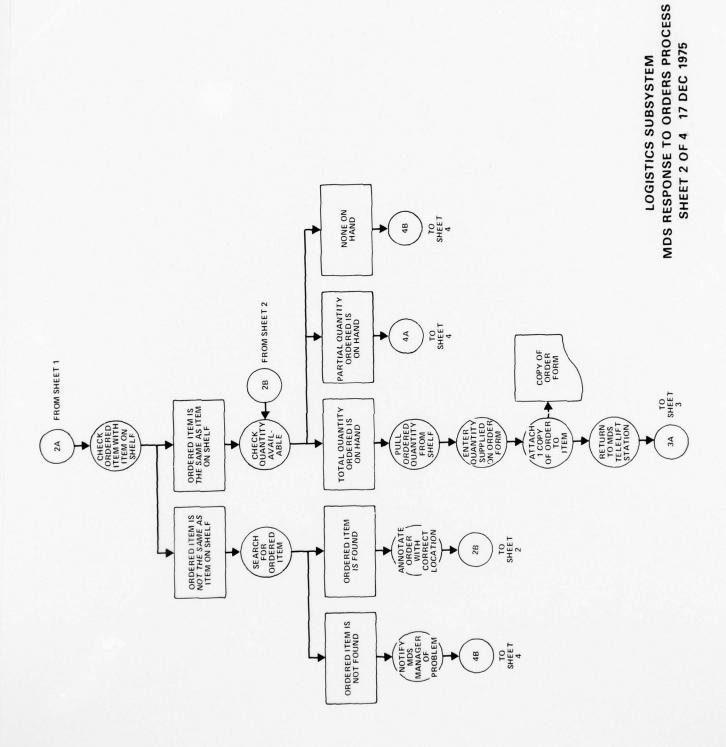


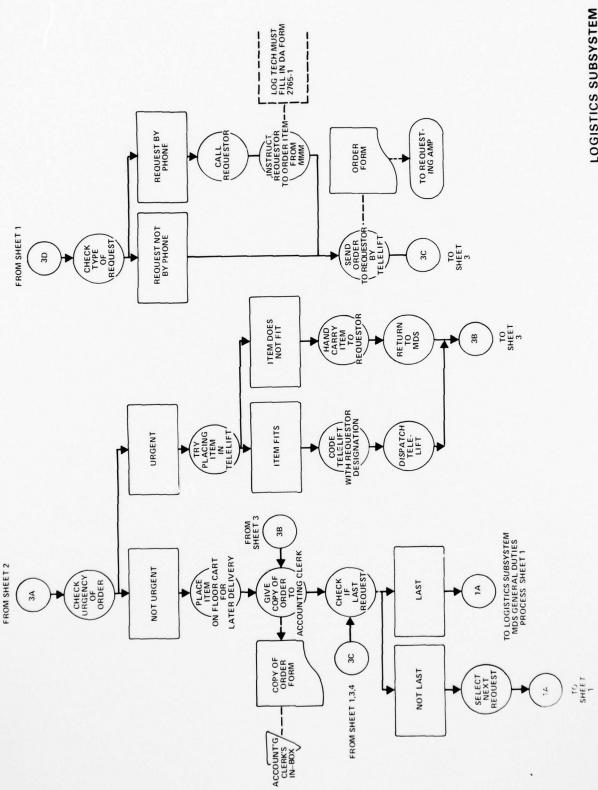
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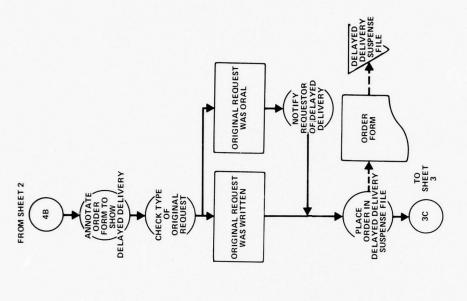
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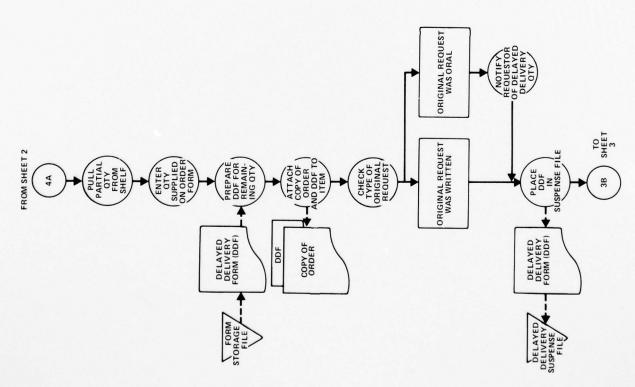
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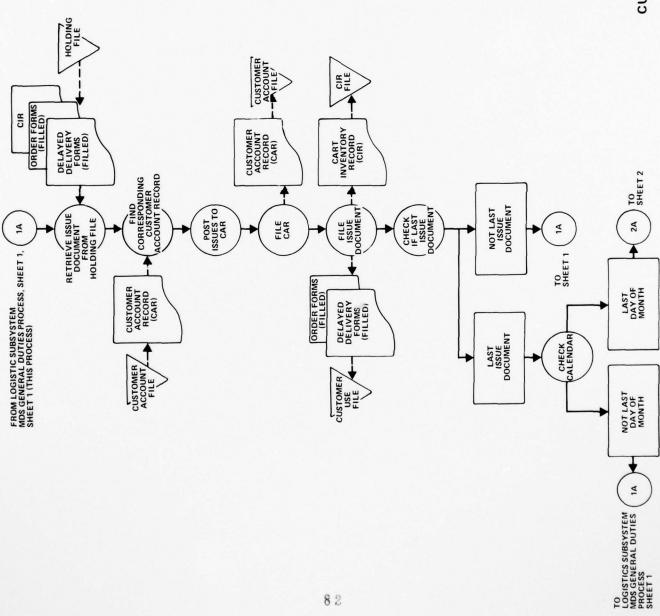


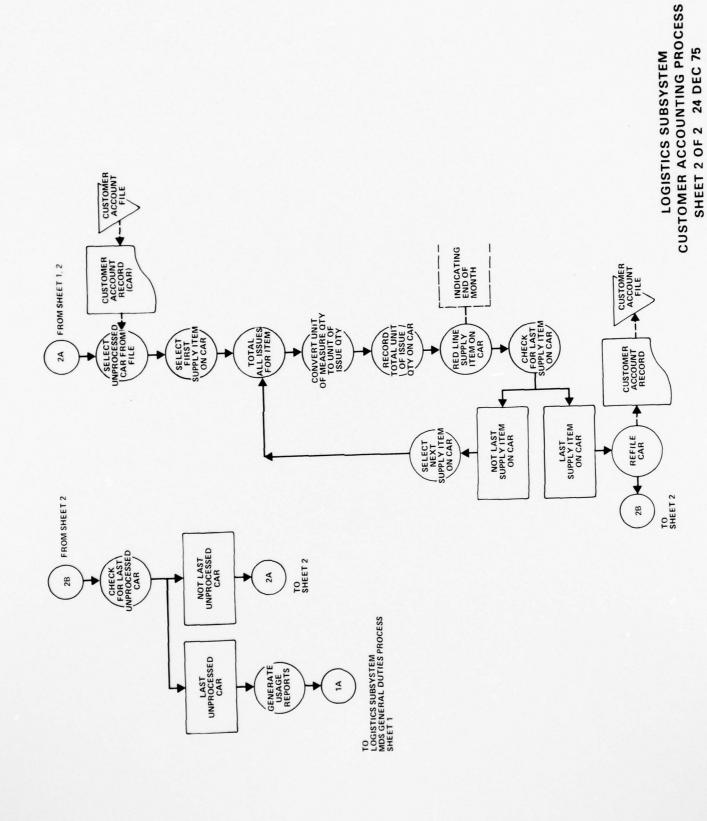


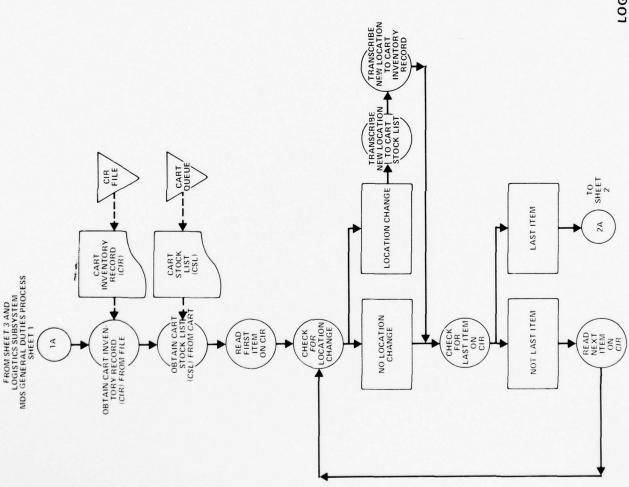


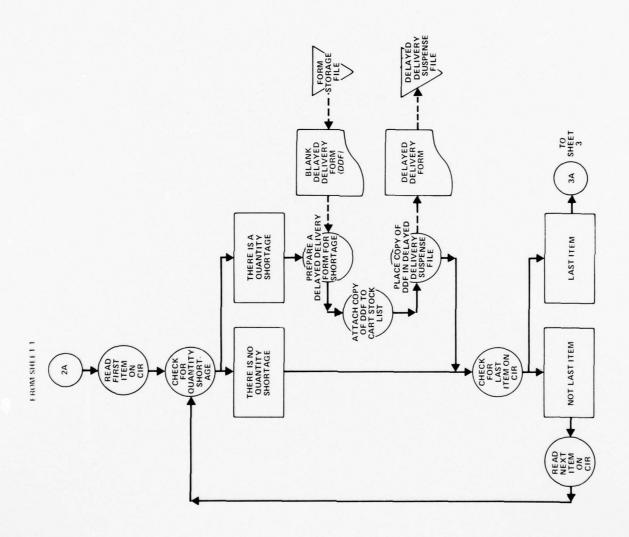


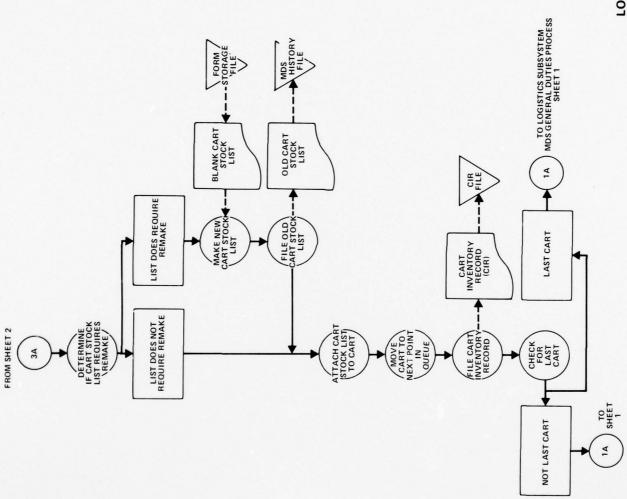




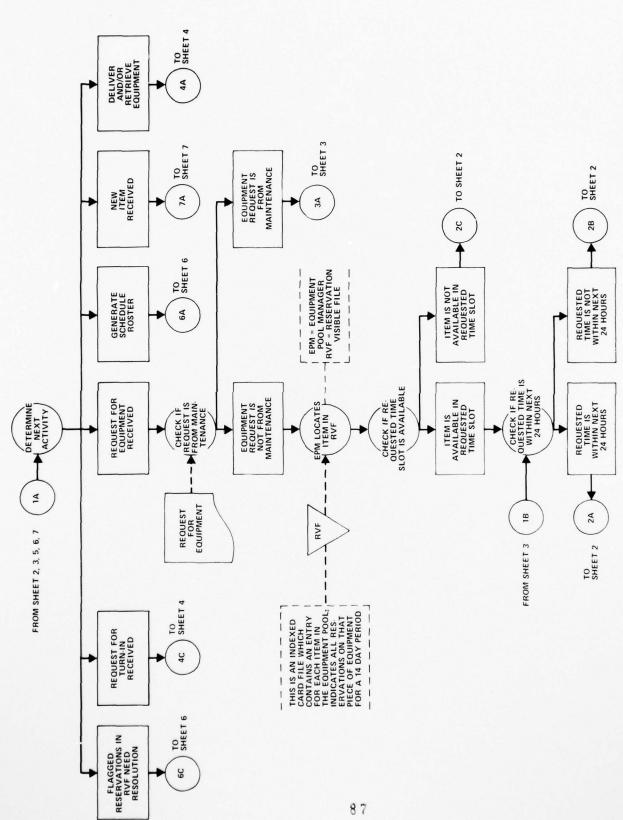




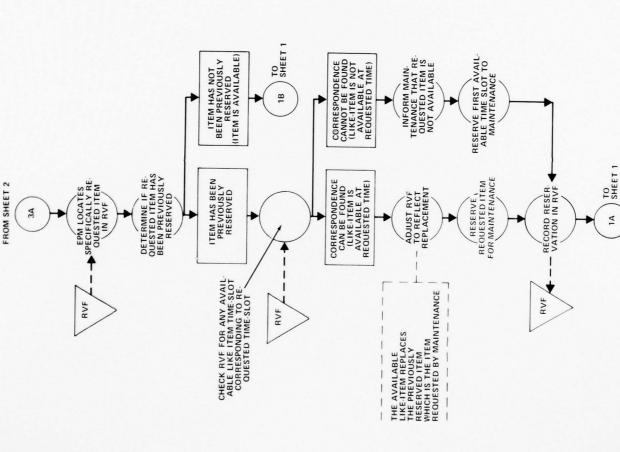




LOGISTICS SUBSYSTEM EQUIPMENT POOL ACTIVITIES PROCESS SHEET 1 OF 7 11 FEB 76

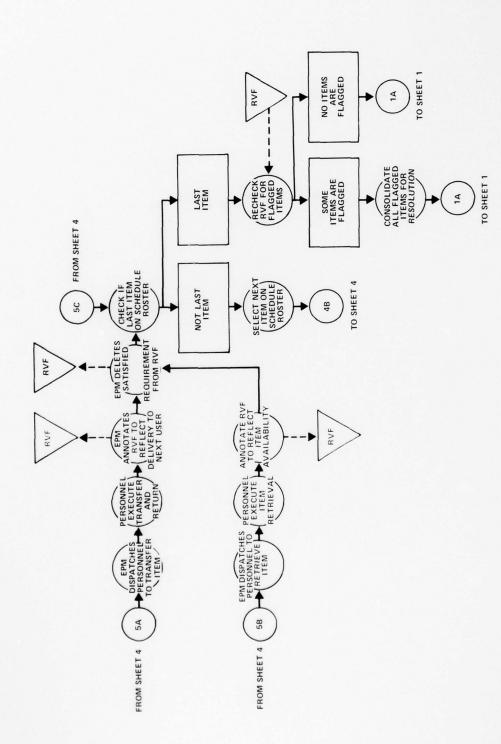


LOGISTICS SUBSYSTEM
EQUIPMENT POOL ACTIVITIES PROCESS
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LOGISTICS SUBSYSTEM
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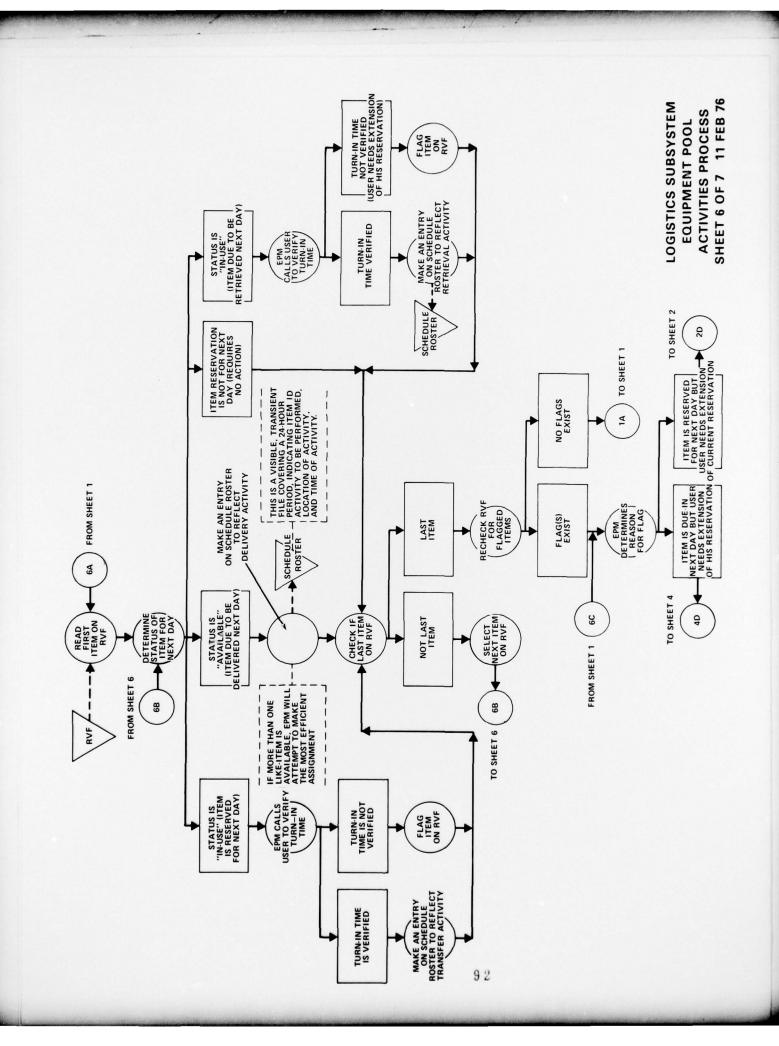
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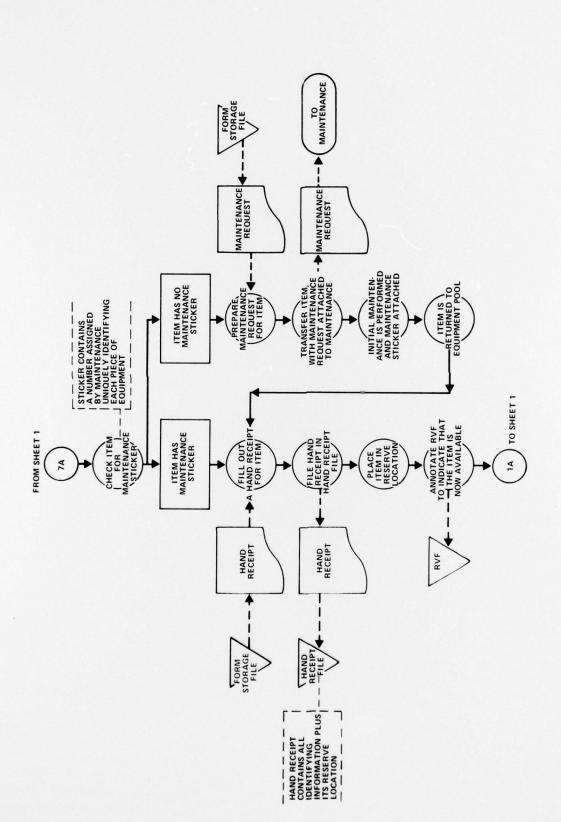
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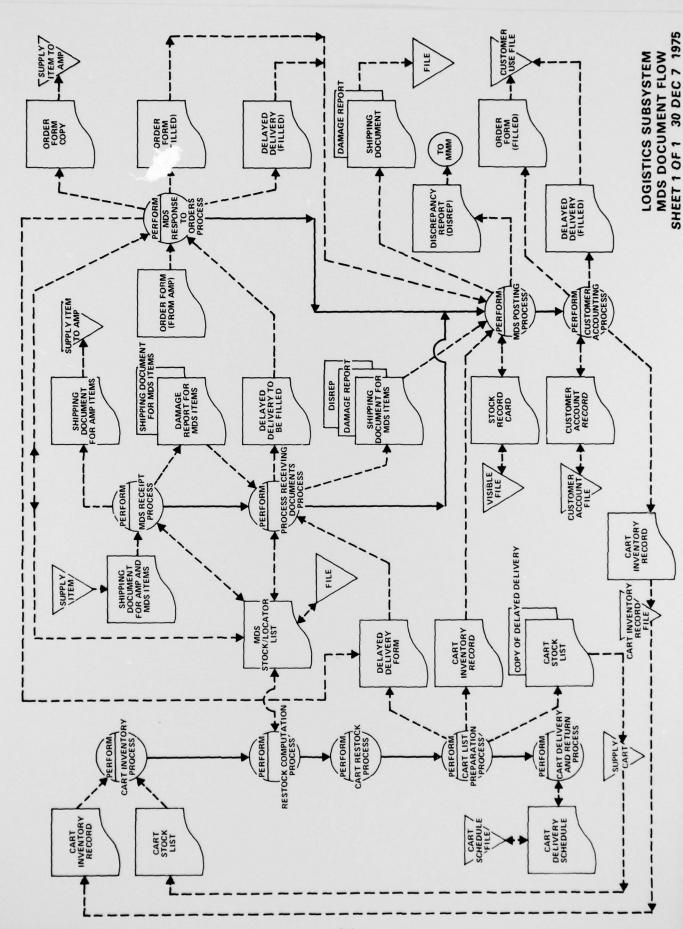
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ABBREVIATIONS

AMP	Area Materiel Point	
AUTO DELIV	Automatic Delivery	
AVG	Average	
CAR	Customer Account Record	
CIR	Cart Inventory Record	
CMS	Central Materiel Service	
COMMO CLERK	Communications Clerk	
CORRESPOND'G	Corresponding	
CSL	Cart Stock List	
DDAMP	Direct Delivery Area Materiel Point	
DDF	Delayed Delivery Form	
DISREP	Discrepancy Report	
DOC	Document	
DSA	Defense Supply Agency	
ЕРМ	Equipment Pool Manager	
EQUIP	Equipment	
EST'M'D	Estimated	
GSA	General Services Administration	
LAM	Logistics Area Manager	
LOG TECH	Logistics Technician	
MAX	Maximum	
MDS	Materiel Disribution Service	
MIN	Minimum	
MMBP	Medical Materiel Benefits Program	
MMM	Medical Materiel Manager	
MRO	Materiel Release Order	
P&C	Purchasing and Contracting Office	
PRESCRIP	Prescription	
QC	Quality Control	
QОН	Quantity on Hand	
QTY	Quantity	
REC'D	Received	
REQ	Requirement	
REQ'D	Required	
RFI	Request for Issue	
RO	Requisitioning Objective	
ROP	Reorder Point	
RVF	Reservation Visible File	
SCRL	Supply Cabinet Requirement List	
SL	Safety Level	
SO	Stockage Objective	
SRC	Stock Record Card	
STAT	Immediate	
W/	With	
WRAMC	Walter Reed Army Medical Center	